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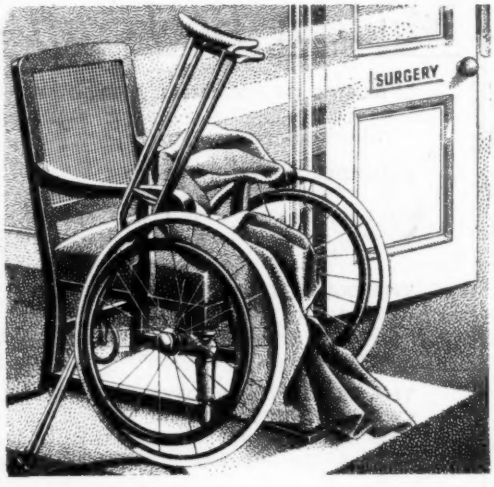

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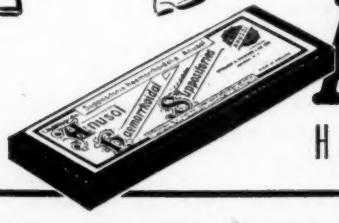

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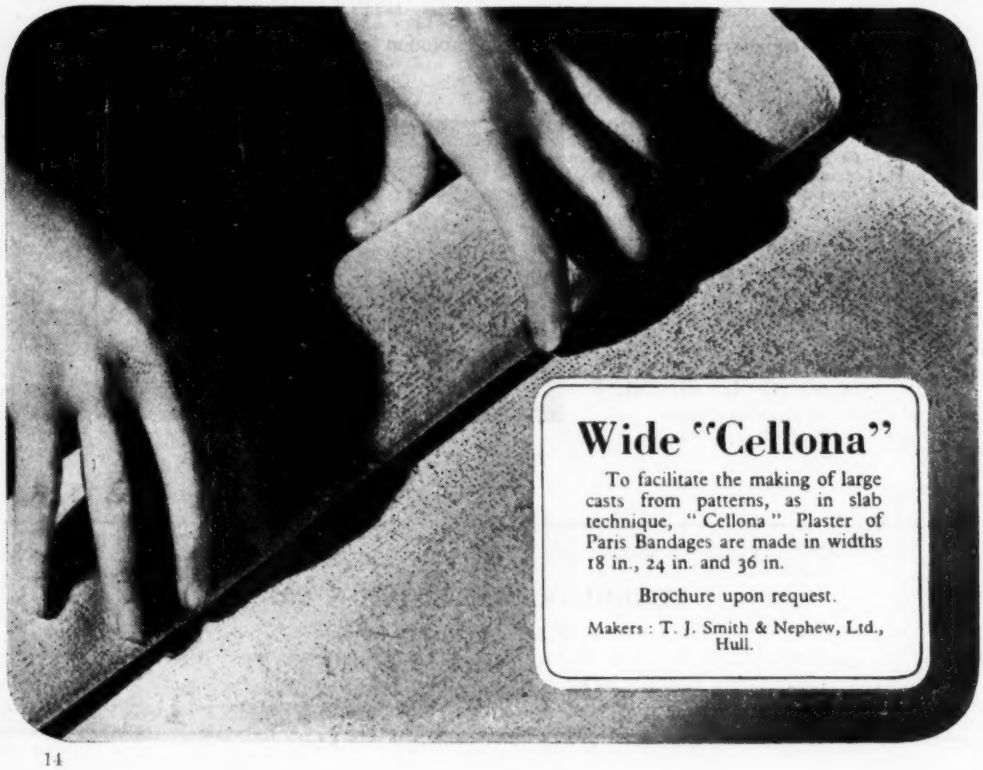
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EDUCATION FOR HEALTH *

JOHN A. RYLE, MD LOND, FRCP
PROFESSOR OF SOCIAL MEDICINE, UNIVERSITY OF OXFORD

THE history of medicine is largely the history of discoveries, methods and disciplines, and of the slow application to practice of principles based on these. In the record of our own small island we regard with pride Harvey's discovery and experimental method; Sydenham's naturalistic teaching; the discipline of the Guy's school of physician-pathologists, including Bright, Addison, Hodgkin, Gull and Wilks; the establishment of new preventive principles by Jenner and Lister; and, in our own time, the work of the nutritional physiologists. Where fundamental contributions to knowledge are concerned it is impossible and unnecessary to apportion credit, but when we take for our measure the direct benefit of the common man the palm should probably go to those whose curiosity concerned them with causes and prevention rather than with description, classification or the intimate study of physiological or pathological processes. I would suggest that our next advance will again be concerned with causes, but with the ultimate rather than the intimate causes, of disease—with the living and working conditions of the people; with their houses, their economic insecurity and their ignorance rather than with the bacteria and nutritional deficiencies for which all these provide the opportunity. Here, looking back, we shall trace our debt to Chadwick and Farr, to Southwood Smith and Simon and Octavia Hill; and, looking forward, we shall base our new campaigns and changing discipline on a closer alliance than heretofore between the medical and social sciences and educational endeavour. Everywhere men are beginning to ask not only why there are so many sick people but why there are so few healthy ones, and what might now be done to improve the chances of health for all.

Of the effective instruments of social and individual medicine, or social and individual hygiene—for these are scarcely separable—by no means the least is health-education. We would do well to inquire how it may come to be better organised within the framework of the numerous social changes and humanistic requirements which we have in contemplation for the postwar world. We would do well to consider what fundamental studies are needed to ensure that the principles of our education for health shall be sound and their applications fruitful. and we must, at the outset, be reasonably critical of past trends in our own education and practice which have ever imposed the emphasis on sickness and led to so curious a neglect of those more balanced processes of body and mind from which all sickness is a departure.

While regarding the treatment of sick persons and their restoration to health as a main objective of medicine we have in our teaching too commonly failed to discuss with our students the very meaning of the words "disease" and "health." Until lately the public health services, dealing rightly in the first instance with the urgent problems, have been more concerned with the prevention and control of infective diseases in the community than with the building of healthy communities. If there be those still among us who would regard the cure or alleviation of disease as the sole and proper function of the practitioner of medicine, is it not time that we reminded them that the word doctor means a teacher, and that this function of teaching, as distinct from therapeutics, has been too long and largely in abeyance? Our neglect can be partly excused by the many exacting preoccupations of the surgery, the clinic and the consulting-room, and partly by the forms of our service and the systems of remuneration for it, which have discouraged health-examinations and the giving of health-advice to the individual in times of well-being or incipient disorder and to the community as a whole at all times. Let us allow that the good family physician takes such opportunities as he can to distribute health-advice, and gives some hard-won time to lectures or welfare and clinic work, but his early training and the present organisation of practice have rarely included health-teaching as a special responsibility. For the assumption of such responsibility our new service should make better provision.

THE MEANING OF HEALTH

So confused has been our thinking about health that when at length we begin to consider it as a proper professional concern we allow a curious term like "positive health" to creep into our terminology—as though there were some other sort of health that was "negative." The old English word "hale," which means healthy, is etymologically the same as "whole." The healthy man is the "whole man," whole in a functional regard, in the enjoyment of his faculties and well adapted to his environment. Health, like disease, and similarly in its time-behaviour, is a continuing and fluctuant rather than a static process; its features vary with age, sex and other circumstance. Between health and disease, be it admitted, there is no sharp and clear-cut boundary. Nevertheless it is important to accept that health is something different from the state of "no demonstrable disease," with which it has been too readily confused. Young army recruits are enrolled in their thousands under category A1, but their rapid gain in weight and improvements in respect of appetite, bearing and efficiency under the influence of good food, fresh air and physical training suggest that, although "no disease" was found at the medical boards, "A1" and "healthy" are not identical, and that the conditions requisite for health could not have obtained in the previous civilian life and work of a large proportion of Service men and women. School meals and other amenities have helped to produce significant improvements in the physical, mental and moral growth and stature of elementary-school children and have brought them nearer to a state of "wholeness" than was possible for the children of earlier generations. The state of mind and body of any one of us at the end of an overdue holiday may be so different from our state before it that we may well doubt, in retrospect, whether we had justified the common claim that we were healthy folk. Of the patients referred to consulting physicians a large proportion require no more to bring them nearer to health than a routine examination, a clear explanation, and a simple and vigorous reassurance, often with particular advice to discontinue an unnecessary regime or treatment which they have adopted with or without professional advice.

CAUSES AND ASSESSMENT OF HEALTH

It is clear that health is something worthy of study for its own sake and for the better applications of knowledge to its promotion and maintenance. It has, like disease, its causes, its manifestations and its consequences, about which a great deal remains to be discovered and towards the better understanding of which methods of observation and experiment already employed in the clinic could be readily adapted. Too many of our "normal" standards employed in the ward and the laboratory have been based upon the examination of patients. In consequence we have seen a world-wide acceptance of uncontrolled tests or methods and the creation of countless invalids through the findings of the stethoscope, of radiography and of each new endoscope, findings which often represented no more than the range of "normal" variability.

There are many fundamental studies which will be necessary to the orderly development of our programmes and policies of health-education. We know already that sound parentage, proper standards of nutrition and housing, fresh air, and adequate sleep and holidays are prominent among the causes of health. The symptoms and signs of health and their variations with age and sex are available for study in the home, at welfare clinics and schools, and in our universities and the Services during the more formative periods of life which come between birth and full adulthood. Some of the consequences of health, like those of disease, are measurable in terms of output or by other forms of achievement, and can be recorded both qualitatively and quantitatively in the individual by careful observation and physical and psychological assessments. The social and other factors subserving a people's health opportunity which still remain to be assessed are numerous. They must include the creation of good conditions as

* A lecture to the Cardiff Medical Society on March 22, 1944.

well as the abolition of bad ones. Setting aside the contributions of other improvements in our social and economic structure may we not reasonably argue that national fitness in the future will owe much to the teaching and guidance which a fruitful marriage of our health and educational services should provide? Ignorance on the part of some or all remains the most potent cause of loss of health. Today we must confess that much of our unfitness is due to continuing ignorance or neglect of well-established facts and indisputable rules of living.

THE EDUCATIONAL FIELD

In approaching this very large problem, the first question to be asked is: "Whom should we educate and how shall we educate them?" The answer to the first question is "everyone," but at least six groups are worthy of particular mention:

(1) The clinical teacher and his students, the practising doctor, the nurse, the midwife, the health visitor and the hospital or municipal social worker, for these will have an ever extending sphere of influence as our new services develop.
(2) The educationists; that is to say, the teachers in school, college and university, for they have the necessary close contacts with the young in the most active, inquisitive and responsive period of their development.
(3) The infant, the child and the adolescent themselves, who are not only in a pliable phase of life but as yet unembarrassed by prejudice or the pressure and conflict of affairs.
(4) The adult, and especially the parent and prospective parent, who are generally anxious to do well by their offspring, and among whom a growing desire for enlightenment in the matter of health is already manifest.
(5) The employers of labour, since they control the conditions of a large part of the lives of our huge industrial communities.
(6) The elected representatives of the people, whether in central or local government, for these hold the responsibility for policies and legislation directly or indirectly affecting the health of large or small, of urban and of rural populations.

Let us briefly consider each of these in turn. I do not wish to enlarge on the vexed problem of reforms in medical education, but let us remind ourselves in passing that the study of anatomy and physiology, although they may help to define certain physical forms and standards, is not the study of health. Neither before nor after he enters the wards does the student find occasion for the frequent examination or study of the healthy subject, and even in the wider world of practice—unless he be concerned with the routine work of an insurance company or the examination of recruits for a Service—he remains without opportunity for intimate observations on persons in health or near to health. His practice is with sick people. Periodic health examinations and health consultations for all are still a remote ideal. And yet health and disease are surely better studied by comparison or in contrast than in isolation. The symptoms and physical signs of health, and, where possible, the measurements which support a diagnosis of health, can, as has been said, be studied by the same methods and instruments as are employed in the study of disease. The causes of health are to be found in heredity and environment just as are the causes of disease. Both have their necessary and complex, and counterpart, ætiologies in which immediate and remote factors participate. All of these should be a concern of the physician as teacher and it is through him that the medical student and members of the ancillary services will have to acquire their new orientation. I can think of few changes that would better balance the medical curriculum than the introduction into the preclinical period of the study of subjective and objective health phenomena by "clinical" and physiological methods, and, in the wards, a return to the old and thorough clinical disciplines, with particular emphasis on the examination and treatment of the patient as a person and not merely as an elaborate problem in pathology. In close association with such clinical teaching opportunity should be provided for complementary studies in social ætiology, diagnosis and rehabilitation. In the course of such studies the main effects and needs both of health and sickness become apparent and can be viewed in their proper relationship and perspective.

EDUCATIONAL GROUPS AND STAGES

The health-education of the young falls into three main stages. First comes the stage of *health habit formation*, which starts directly after birth and is assisted by the institution of regularities in respect of sleep, feeding and bowel and bladder function—a conditioning of reflexes in other words—and is later sustained by the simple routines and disciplines of the nursery, the daily outing, the bath, the lavatory, the play-times and the sensible balancing of liberties with those small but necessary restraints which the good mother, with proper training and opportunity, learns for herself in varying measure and the good day-nursery seeks to imitate with its larger brood.

The stage of simple *health-instruction* in the school period comes next with its class-room and outdoor disciplines, its explanations and illustrations of simple biological phenomena, its elementary hygiene, and, at the right times and by appropriate gradations, its sex-education and mothercraft discussions.

To this succeeds the stage of education in *health-responsibility* for the adolescent and young adult at home and in school, in workshop or in university, in the Services, in town or village. Health as a duty, and not only a right, of citizenship can here be made a suitable and arresting subject for lectures and discussion groups. Diet and cooking, cleanliness and the use of leisure should have special emphasis. The stage of education in health-understanding and responsibility should thereafter continue into adult life. The periodic health examination (in itself a contribution to health-education and quickly appreciated as such) must in time become available not only in infancy and childhood and for the school-leaver but also as a statutory preliminary to employment or to student life, and at intervals thereafter. If it is considered necessary for the fighting men it must be allowed that those others who work for their country in times of peace or war deserve it no less. Pre- and post-marital and ante- and post-natal advice can greatly assist human adjustments in the home, whether it be obtained from the family doctor (as it should be when better training or the experience of years have given him wisdom) or failing this from a specialist physician or marriage-guidance clinic. Let us hope, however, that we shall not continue to subdivide our special centres unduly and add to our birth-control clinics a multiplicity of others for birth-encouragement or the treatment of sterility, thereby dismembering the study of the most important and intimate of all human relationships and often disturbing, instead of assisting, processes whose natural and personal harmonies and social uses are so closely interwoven.

In the matter of health-responsibility the industrialist and ship-owner have still to learn that their most sensitive and indispensable machine is the human machine and that the improvement in the near future of working and living conditions on land and sea is both a human duty and an urgent economic necessity. The doctors and statisticians and welfare officers must be their teachers, the architects and engineers their associates.

But how, last of all, are we to devise an education for our legislators? How can we ensure that the chairman of a local health committee or a Minister of Health shall not in future take office, as he commonly has done in the past, no more informed than other laymen about the basic problems of health and sickness and everything pertaining to them? Would it be too much to suggest that simple courses of instruction in vital statistics; in the correlation of mortality with occupation and overcrowding; in the recreational, nutritional and environmental needs of the people—in fact in the broader principles of social medicine and hygiene—should be made available for those who sit in the Commons and the Lords and on the borough and the county council; and that attendance should be obligatory?

EDUCATIONAL METHODS

It would be beyond my scope to discuss methods of health-education in any detail. My purpose has rather been to indicate some dominant needs and principles.

The film, the broadcast, the wall-poster and the authoritative newspaper article can undoubtedly play their part. It might reasonably be required of all picture-houses that they should include in every show a simple and suitable health-film as a contribution to popular interest and instruction, and to counteract for the common weal the lurid and anti-social films which bring profit only to the trade. As in all education, however, direct personal influences are the most to be encouraged and desired. If we should in time, as I trust we may, see family practice in our towns and cities conducted in and from well-conceived and wisely staffed health-centres, let us hope that these centres will live up to their name and that they will make periodic health examinations and simple health instruction regularly available for the families they serve. The multiplication of large units of the Peckham type with manifold social amenities and a combination of community- with health-centre would not at once be practical, nor necessarily the best policy. But the pioneer studies conducted by the authors of the Peckham experiment have already helped to demonstrate and emphasise the importance of continuing first-hand knowledge of family problems and relationships and the benefits to communal health and happiness which can accrue from skilled medical guidance and a sensible stimulation of interest in healthy living. In conjunction with personal teaching at the hands of the family doctor, since hygiene is both a public and a personal concern, it may well become a function of local authorities to further health-education through closer collaboration on the part of trained and selected medical officers and their health visitors, on the one hand, and those responsible for schools and voluntary associations or factory welfare departments on the other. Oxfordshire has recently appointed a whole-time assistant medical officer with responsibility for the organisation of health education in the county.

Should not biological and health teaching and physical education become recognised as an integral part of all training for citizenship in our schools and universities? They should not surely be confined to isolated courses or to any special period or age-group. They have their affiliations with other subjects. History and geography, illustrated by accounts of the influence on human populations of climate and food or famine and of endemic and epidemic diseases; and zoology, supplying examples of the part played by insect and animal carriers of disease on human morbidity and mortality, can provide an introduction to the story of pioneering activities in the field of social hygiene and of their contributions to general progress. In the uses and effects of physical training and holiday adventure, in class-room and dormitory hygiene and the properties and preparation of foods, in the reasons for immunisation and the pasteurisation of milk a wealth of illustrative material is at hand from which the enlightened teacher of the later age-groups might select. School curricula are surely not so rigid that we cannot, in our new educational era, find a place for lessons in things so pertinent to the more robust and understanding life we would have our children come to lead. Doctor and parent, school teacher, physical or games instructor and psychologist will some-day meet more freely in consultation; they have a common field of action and much to give to one another on behalf of national vigour and the growth and spread of the general idea of communal responsibility for health.

"VULGAR ERRORS"

A hundred popular fallacies, as foolish and harmful as any of those described by Sir Thomas Browne in his *Vulgar Errors* remain to be dispelled. Disease-phobias due to ignorance, the advertisements and "know-all" neighbours are prevalent in every social class. The evils of patent medicines and the wasteful expenditure on them; the bad effects on mind and body of the "bottle of medicine" habit and especially of purgatives; of food-fads and over- and under-eating; of under- and over-work; of excesses in smoking or drinking; of sexual anxieties and family misunderstandings—what a large proportion of our patients are the victims of no more than these.

One of the most remarkable introductions to the study of educational method, written by no less a person than the author of the *Essay of Human Understanding*, devotes a full third of its content to the subject of health-education. John Locke, physician and philosopher, in his small book, *Some Thoughts concerning Education*, written in 1692 when he was well advanced in years, left advices on diet which closely conform with our modern views; on sleep; on the virtues of light, loose clothing; on the importance of "hardening" activities and fresh air; on the follies of purgation; on punishment and more especially its abuses—in brief on the basic principles of physical, mental and moral health-education in the child, who, after all, is father of the man. In an introductory paragraph he says:

> "The Consideration I shall have here of Health, shall be, not what a Physician ought to do with a sick and crazy Child; but what the Parents, without the help of Physick, should do for the Preservation and Improvement of an healthy, or at least not sickly Constitution in their Children."

While not decrying the uses of "physick" in a variety of emergencies, is it not time we made a more serious and nation-wide attempt to discover what might be achieved without it, and to lessen the occasions sought or made for unnecessary medical and surgical intervention and the heavy expenditure on illness and hospitalisation? Ignorance is still our most present and destructive ill. Its remedies, difficult though they be to dispense, are better understood than the remedies for most of our other chronic diseases. "Homes, food and work"—an advance on "bread and circuses"—may be the primary needs of the people, so that they may know a better life than their forbears, but without a sound and sustained education in the art of living they will not reap the advantages that good environment and greater security might otherwise provide. Many collaborators will be needed but the leaders in the school we contemplate should be the medical men and women of the younger generation and those who follow them. We can only express our hopes and help to direct their changing disciplines.

RETROBULBAR OPTIC NEURITIS

A PATHOGNOMONIC SIGN

R. AFFLECK GREEVES, M B LOND, F R C S
CONSULTING OPHTHALMIC SURGEON TO THE MIDDLESEX HOSPITAL; CONSULTING SURGEON TO THE ROYAL LONDON OPHTHALMIC HOSPITAL

BESIDES the central scotoma, certain accessory signs and symptoms in the early stages of acute retrobulbar optic neuritis are generally recognised. These are (1) partial dilatation of the pupil, which reacts to light but does not hold the reaction; (2) a sensation of pain when the eyeball is moved; and (3) tenderness of the globe to pressure. It does not seem to be commonly known, however, that this tenderness is usually experienced only when pressure is applied to the upper surface of the eyeball, and that it is limited to a spot in the middle line corresponding roughly to the site of the attachment of the superior rectus tendon. For many years I have regarded its presence as pathognomonic of retrobulbar neuritis; but the textbooks I have consulted, both English and foreign, merely state that the eyeball is tender on pressure without specifying a localised area.

The patient may not be aware of the tender spot until its presence is discovered by pressure, but afterwards he can readily find it with his own finger. The sign is most commonly elicited in patients who feel pain on movement, but it may exist independently. It may be detected both in slight and severe cases; I have noted it in several patients whose visual acuity was not reduced below 6/9. It is present only in the early stages of the disease and, like pain on movement, disappears in a matter of days.

Of the accessory signs I have mentioned, the imperfect pupil reaction is in my experience the most constant, but even this may be absent or anomalous. I have, for example, recently seen two cases with less than 6/60 visual acuity, in one of which the pupil was of normal size and showed a normal reaction, while in the other the pupil was dilated but no direct reaction to light was obtainable. In neither was there pain on movement or tenderness to pressure.

WOUNDS OF THE BLADDER

J. G. SANDREY
MB SYDNEY, FRCS
TEMP. SURGEON CAPTAIN RNVR; CONSULTANT IN GENITO-URINARY DISEASES, ROYAL NAVY

R. A. MOGG
MB WALES, FRCS
SURG. LIEUT.-COMMANDER RNVR; GENITO-URINARY SPECIALIST, ROYAL NAVY

THE last war produced classical papers on wounds of the bladder, by Fullerton, Legueu and others. The present war has now lasted nearly five years without any important addition to the views then expressed, and the possibility that new fronts may soon be opened seems to justify a review of the subject in the light of modern urological knowledge.

The series of 5 cases we record here is small but is fairly representative of the various types of injury. The patients were all seen at Royal Naval hospitals in Great Britain, though 2 had been treated abroad. One case of rectovesical impalement was not due to enemy action, but is included because this type of injury may be commoner in coming campaigns (e.g., among paratroops).

In the 1914–18 war, Fullerton (1918) estimated that among BEF casualties evacuated to base hospitals in France the incidence of bladder wounds was not more then 1 in 3000 or 4000. The incidence on the battlefield, however, was probably much higher, for the more severe injuries are rapidly fatal and many receiving them must have died before the diagnosis of a bladder injury could be made. Analysis of British and French records for 1914–18 show that the bladder was involved in about 5% of all abdominal wounds (Young 1942). There is no reason to expect any difference in the incidence during the present conflict.

PATHOLOGICAL ANATOMY

Wounds of the bladder are nearly always complicated, because the viscus (unless much distended) is entirely surrounded by the bones, muscles and ligaments of the pelvis. When it becomes distended the apex rises into the abdomen, and it is then more vulnerable, not only because it lacks the protection of the pelvis but because it presents a larger target (fig. 1). Moreover, intraperitoneal rupture of a distended bladder, without an external wound, can result from comparatively trivial trauma to the anterior abdominal wall. Fullerton notes that nervous tension before going into action usually causes a desire to micturate, and which helps to explain for the relative rareness of intraperitoneal rupture among battle casualties.

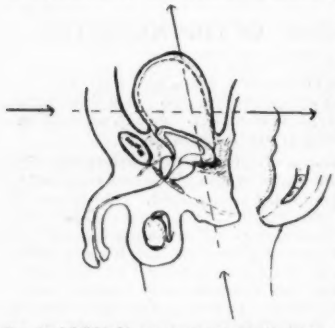

Fig. 1—A full bladder presents a greater target to an anteroposterior missile. A vertical missile is likely to involve both the intraperitoneal and the extraperitoneal surfaces, whether the bladder is full or empty.

The anatomy of the pelvic fascia determines the course of a perivesical effusion, whether of pus, urine or blood. Satisfactory drainage can be established only by a carefully planned anatomical approach.

Below the attachments of the peritoneum, the vesical part of the visceral layer of the pelvic fascia completely invests the bladder, to which it is loosely attached, particularly at the front and at the sides. The space between the fascia and the bladder wall allows the bladder to distend within the pelvis during the filling phase (fig. 2A and B).

PERIVESICAL EFFUSIONS

The powers of resistance to infection in the perivesical space seem to be low and an effusion into it of urine or blood, if allowed to remain, will rapidly suppurate. In the 1914–18 war pelvic cellulitis was responsible for more deaths than any other single cause in patients who had survived the immediate hazards of a bladder wound. In addition, most of the later complications (persistent cystitis, stone-formation, osteomyelitis, sinus and fistula formation and ascending renal infection) were attributable in the first instance to chronic perivesical cellulitis.

Destructive osteitis of the symphysis rami of the pubis is among the commonest sequelæ of chronic infection of prevesical cellular tissue (cases 2 and 4). Beer (1928) and others have described similar osteitis after suprapubic operations (e.g., prostatectomy) and their accounts suggest that the cause was the same.

The most important factor in the treatment of any bladder wound is thus *the prevention of any effusion, either of blood or urine in the perivesical tissues.* Immediate suture of the wound or wounds of the bladder wall, to prevent extravasation of urine, should be the first object of treatment, and an unsutured perforation of the bladder should give rise to as much anxiety as an unsutured perforation of the gut.

Diversion of the urine by suprapubic cystotomy will put the bladder at rest and facilitate healing, besides preventing leakage of urine through the suture line. In addition, the perivesical tissues adjacent to the perforation should always be freely drained. From the surgical point of view, it is convenient to divide the perivesical space into two compartments, an anterior and a posterolateral compartment, though it should be remembered that there is free communication between the two (fig. 2A and B).

The anterior, or prevesical, space (space of Retzius) can be readily approached suprapubically by stripping the bladder from the pubis.

The posterolateral, or paravesical, spaces (fig. 2B) communicate freely behind the base of the bladder and in front of the rectum, immediately below the rectovesical pouch of peritoneum. An effusion in the anterior part of the space may track along the vas to the inguinal canal, and where the pubic bone has been damaged it may sometimes extend laterally deep to the attachments of the adductor muscles of the thigh. Posteriorly, an effusion will always tend to gravitate to the loose fascial space between the rectum and bladder. Here, it can usually be recognised per rectum as a diffuse boggy mass immediately above the prostate gland; and when the abdomen is opened, the rectovesical pouch will be found to be diminished in depth by the underlying effusion. Very large effusions in this area may burrow under the peritoneum of the posterior abdominal wall and track upwards as high as the lumbar region. Owing to their depth they may be very difficult to recognise.

The paravesical space is approached by the suprapubic route. Adequate exposure can usually be made by stripping the lateral wall of the bladder from the side of the pelvis. Counter-openings in the inguinal or crural regions may be necessary when these areas are involved. A midline perineal approach is recommended when adequate drainage of the posterior part of the paravesical space is needed. This provides dependent drainage and is of particular value when there is a wound of continuous areas of bladder and rectum.

THE VEINS OF THE BLADDER

Many large thin-walled veins transverse the spaces in front and at the sides of the bladder. They are most numerous towards the base, where they communicate freely with the prostatic venous plexus and the dorsal vein of the penis; they are often damaged in wounds of the pelvis, particularly with injuries at the level of the bladder base or the prostate. They give rise to a continuous venous ooze into the loose extravesical cellular tissues, and an enormous hæmatoma may form around the bladder base and extend upwards beneath the peritoneum of the posterior abdominal wall. This type of hæmorrhage is often difficult to diagnose, being concealed in the depths of the pelvis. It should be suspected when a boggy mass is felt per rectum above the prostate gland, and when symptoms of internal hæmorrhage are present. Treatment consists of evacuation of all clot by the suprapubic or perineal route. If possible, the severed vessel should be ligated, but where it has retracted and the bleeding point cannot be secured light packing against the side wall of the pelvis may be needed, though mere removal of adherent clot will often allow the vessel to

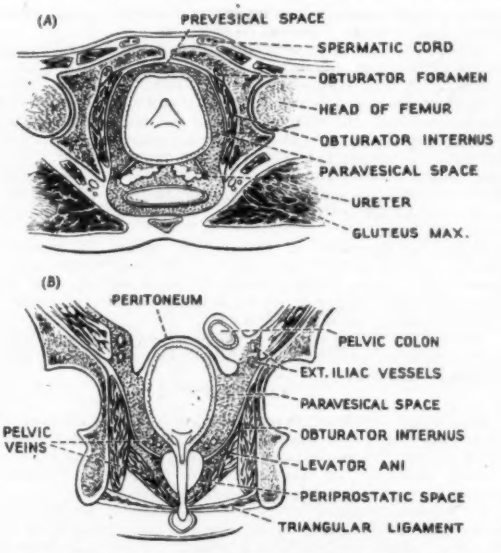

Fig. 2—Diagram of paravesical cellular space at level of hip-joint. (A) Transverse section; (B) vertical section.

contract, and bleeding will cease spontaneously. The risks of infection in a perivesical hæmatoma have already been emphasised.

INJURY TO THE BLADDER

Contusion of the bladder wall may result from slight trauma; extensive lacerated wounds may destroy a large segment of the bladder; and when the anterior abdominal wall is injured, the bladder may herniate through the wound—"l'extrophie traumatique" of Legueu (1918). Through-and-through wounds are fairly common and a search should be made for the exit wound when the missile is not retained in the bladder. Small clean incised or punctured wounds are often difficult to find at operation, because they are apt to seal themselves off, but they can readily be seen on cystoscopy.

The actual wound of the bladder will depend on the missile, its track, and the state of fullness of the bladder at the time of injury. As with wounds elsewhere, the most extensive injuries are due to shell or bomb fragments. All high-explosive wounds give rise to infection because they tend to carry in fragments of clothing and particles of soil. Bullet wounds and bayonet stabs are usually clean perforations. The damage caused to the soft tissues by any missile may be enormously increased if it first strikes the bony pelvis, particularly if the pubic bone is damaged. This bone being compact, comminution is likely, and multiple bony splinters are driven into the soft tissues ("blessure à grand fracas" of Legueu). The wound must be carefully searched for bony fragments, which if missed give rise to the inevitable sequelæ of infection and stone-formation.

Since the sacrum and the iliac bones are largely cancellous, clean-cut perforations or fractures without comminution are the rule when they are injured, and damage due to bony fragmentation is less when the posterior part of the pelvic girdle is affected.

The track of the missile is usually oblique. Fullerton (1918) states that in three-quarters of his cases there was a wound of the buttock. Any deep wound of the buttock should therefore be regarded with suspicion and carefully investigated as soon as possible. The missile is usually retained, but may emerge in the groin or suprapubic region. Anteroposterior wounds are much less common. The wound of entry is usually in the region of symphysis, which may be shattered, with extensive secondary damage to the anterior wall of the bladder. Other routes are via the thigh, groin, perineum, iliac or sacral regions. Transverse wounds are rare and often involve the hip-joint.

Wounds of the bladder are usually divided into intraperitoneal and extraperitoneal. In the former the bladder is usually distended at the time of injury, especially when the track of the missile is in the horizontal plane. Vertical wounds (e.g., via perineum) may damage the peritoneal surface even when the viscus is empty (fig. 1).

ASSOCIATED INJURIES

Sometimes an associated lesion—e.g., perforation of bowel—may be so serious that it overshadows the bladder injury and must take precedence in treatment. The bones of the pelvic girdle will be damaged in over half the cases: according to Legueu and Gouverneur (1919–20), fractures were present in 40 out of their 61 cases of wounds of bladder. Injury to the rectum is to be expected in about a third of the cases, and is specially likely when the track of the missile traverses the area where the two viscera are in close contact at, or just below, the reflection of the peritoneum of the rectovesical pouch.

Intraperitoneal wounds are likely to be complicated by injury to the small intestine, for one or more loops of ileum are always in contact with the peritoneal surface of the bladder. For the same reason the pelvic colon may be damaged. Other important structures liable to injury are the ureters, the posterior urethra and prostate, the seminal vesicles, the iliac vessels and the sciatic nerve.

CLINICAL FEATURES

As a rule there is no external evidence of bladder injury.

Shock varies greatly and is usually due to associated injuries or to hæmorrhage. Contrary to the usual teaching, it can be stated that perforation of the bladder alone, however extensive, gives rise to little shock; indeed, uncomplicated closed ruptures, especially if intraperitoneal, are notoriously difficult to diagnose in the early stages.

Hæmorrhage may be extravesical or intravesical. Extravesical hæmorrhage is the commoner and more dangerous, and it may be intraperitoneal or extraperitoneal, according to the site of the bladder lesion. Shifting dullness in the lower abdomen may indicate an intraperitoneal collection of fluid with extraperitoneal bleeding; a large perivesical hæmatoma may track upwards along the psoas muscles as high as the kidneys, and in such cases preoperative diagnosis is seldom possible.

Intravesical hæmorrhage is rarely prominent; in fact the urine in the bladder may contain little or no blood even when the rupture is severe, with profuse extravesical hæmorrhage. Injuries involving the iliac vessels are rarely seen, for such hæmorrhage is usually fatal.

Fistula.—Leakage of urine from the external wound, though common, is not invariable, because the bladder wound tends to close. Appearance of urine from a wound of the buttock is in any case likely to be delayed for several days, especially where there is a long narrow track through the glutei.

When doubt arises as to the nature of a clear effusion from a surface wound, its urea content should be estimated. No body fluid is likely to contain more than 0·1% urea, so a higher figure identifies the effusion as urine. An alternative method is to give the patient an intravenous injection of 4 c.cm. of 0·4% of indigo-carmine; this is excreted rapidly by the kidneys and gives a blue colour to urine.

Rectovesical wounds generally give rise to an internal urinary fistula. In such cases, urine tends to flow into the rectum rather than fæces into the bladder.

Retention of urine after bladder wounds is usual but not invariable. Urine may be passed without difficulty when wounds have sealed. *Dysuria* may be noted when a projectile or other foreign body has impacted at the bladder neck. *Tenderness and rigidity* of the lower abdomen are unreliable signs and may merely indicate contusion of abdominal muscles.

INVESTIGATION

The patient should be asked whether the bladder was full or empty at the time of injury. The following scheme of investigation is useful.

1. Examine the entrance wound; urinary fistula may be present, and the wound of exit may be found.

2. X rays will locate the missile, if retained, and show bony damage.

3. Reconstruct the track of the missile by joining entrance to exit wounds or entrance wound to retained missile. (Study of serial anatomical sections is a great help.)

4. Rectal examination may reveal fractures of the pelvic bones, perivesical effusion or a rectal wound in cases of rectovesical injury. When a rectovesical fistula is present a gush of urine may come from the rectum after dilating the external sphincter.

5. Catheterisation is of little value except to obtain a specimen of urine. The introduction and withdrawal of a measured quantity of fluid into the bladder may give fallacious results, because a small wound of the bladder may be temporarily sealed off.

6. Cystoscopy should be routine wherever possible. It will reveal perforations, retained missiles and other foreign bodies. It is safe provided sterile water is used to distend the bladder. Antiseptic solutions (particularly mercurial preparations) are contra-indicated because of the dangers of absorption.

7. The bladder should be explored in doubtful cases. This is justifiable whenever injury to the bladder is suspected, especially when, through lack of special equipment, full investigations cannot be carried out. Suprapubic cystotomy and exploration of the perivesical space is analogous to exploratory laparotomy for suspected intra-abdominal perforation or hæmorrhage.

TREATMENT

Each case will present its own problems, but some guiding principles may be useful.

1. Operation should be undertaken at the earliest possible moment in order to prevent perivesical extravasation of blood and urine, to remove any source of infection and to control hæmorrhage.

2. The bladder should be systematically exposed by the suprapubic route. The peritoneum must be opened and the peritoneal surface of the bladder and adjacent pelvic viscera carefully examined; any intraperitoneal lesion should be dealt with and the rectovesical pouch drained. The bladder is opened, either by enlarging an existing wound or by a separate incision anteriorly. Foreign bodies within the bladder wall are removed and the exact location of any wound of the wall ascertained. Perforations are closed by interrupted catgut sutures placed ½ in. apart and including the whole thickness of the wall. Small incised or punctured wounds of the bladder—particularly on the peritoneal surface—tend to come together and thus seal themselves off, but too much reliance should not be placed on this as a safeguard against leakage of urine. These wounds should always be sutured at once, otherwise an insidious pelvic cellulitis or peritonitis may develop.

3. The bladder should always be drained suprapubically, no matter how small the perforation. This puts it at rest, and diversion of the urine prevents leakage through the suture line. The tied-in catheter has no place in the treatment of wounds of the bladder, however slight they may be: the drainage it affords is very uncertain because the catheter tends to slip out, and because the small eye of the catheter is likely to get blocked by mucus or pus, which makes the catheter act as a plug instead of a drain. It is impossible, moreover, to avoid the development of urethritis, and this, with its common sequelæ of vesiculitis and epididymitis, will add to infection in and around the bladder. Periurethral suppuration, followed by fistula and stricture, are additional hazards from a tied-in catheter.

The reluctance of many surgeons to drain the bladder suprapubically appears to be based on the false assumption that a persistent suprapubic fistula is likely to form along the track of the tube. But a urinary fistula of this kind is always due to persistent infection, deriving either from an overlooked foreign body or from perivesical cellulitis. If there is no infection the suprapubic track will always close rapidly after the tube has been removed.

4. The perivesical tissues adjacent to any extraperitoneal wound of the bladder should be carefully explored. Foreign bodies are removed and extravesical hæmorrhage controlled. Formal excision of the track of the missile is of course quite impossible. Free drainage of the perivesical tissues adjacent to the bladder wound is essential. Counter-openings may be necessary where extravasation is already widespread (e.g., groin, perineum, or medial aspect of thigh).

Before laparotomy, wounds of the buttock or sacrum, especially when lacerated, should be explored from behind. A tube should be inserted into the depths of the wound to drain the pelvic cellular tissues, since adequate drainage through the abdomen is often impossible. Where the rectum is involved, an attempt should always be made to suture the rectal wound from behind. This may be facilitated by removal of the coccyx or even the lower part of the sacrum (Gordon-Watson 1942). Colostomy should always be performed when there is a wound of the rectum.

When a fracture of the pelvic girdle is present, careful search should be made for all loose fragments of bone; the rough edges should be rounded off, and the wound of the bladder made watertight to prevent leakage of urine round the site of fracture.

Where the lower end of a ureter is severed, the upper end should be mobilised and implanted into the bladder without tension.

FIRST-AID

Conditions seldom favour major abdominal surgery at or near the front line. In such circumstances, every effort should be made to give the patient with a bladder wound priority of transport to hospital. First-aid measures may save life during the interval.

1. Where there is an external urinary fistula, the wound should be gently dilated and a tube inserted down to, or if possible into, the bladder. This will help to divert the urine and prevent extravasation.

2. In some cases catheterisation may be necessary to relieve retention of urine. The use of a tied-in catheter is justifiable during transport. Treatment by "emergency cystostomy" is not recommended: if facilities are available for this operation, closure of bladder wounds and extravesical drainage can clearly be attempted at the same time. Cystostomy alone is inadequate and will not prevent leakage of urine from an unsutured perforation. Apart from the danger of extravasation, a second operation undertaken later to close the rent is always made more difficult by contraction of the bladder wall.

CASE-HISTORIES

CASE 1.—Able seaman, aged 21, admitted to hospital on July 28, 1943, with multiple injuries received in a naval action. Traumatic amputation of left foot, penetrating wound of left ankle-joint and multiple injuries of the lower third of the left leg. Multiple lacerations of right foot and leg and two small wounds of the medial side of the left thigh near perineum (fig. 3). Wounds produced by a cannon-shell exploding at his feet on the deck of his ship. Amputation of the left leg at the site of election, and debridement of the remaining wounds after resuscitation. After operation, he complained of hypogastric pain, and his urine contained masses of red cells. Radiography showed metallic foreign body in the suprapubic region.

Fig. 3—Case 1, wounds of thigh, near perineum.

July 29: cystoscopy demonstrated a metallic fragment lying on the posterior wall of the bladder. Suprapubic cystotomy performed. Moderate degree of hæmorrhagic effusion into the perivesical cellular tissue and contusion of the left anterior lateral wall of the bladder, marking the wound of entrance which had sealed off. The track of the missile passed down towards the medial side of the thigh, below the inferior ramus of the pubis. The missile, measuring ½ by ¾ in., and ragged in contour, was removed. Suprapubic cystotomy performed through the contused area of the bladder wall and the track of the missile and perivesical space drained.

Convalescence uneventful. Perivesical drainage-tube removed on the 10th day. Suprapubic catheter removed on the 20th day and the patient passed urine. Suprapubic wound

soundly healed on the 25th day. The patient was invalided from the Service, was fitted with an artificial limb and is leading a normal life.

The good functional results and absence of complications in this case were due to the proper application of surgical principles.

CASE 2.—Able seaman, aged 19, accidentally injured in North Africa by a revolver bullet, Feb. 1, 1943. Entrance wound below the crest of the left ilium; no exit wound but the bullet was palpable under the skin behind the right trochanter and was removed (fig. 4). After injury he passed a little blood-stained urine per urethram. On the same day the peritoneum and bladder were explored through a lower midline incision. There was no intraperitoneal lesion but a wound was discovered in each anterolateral wall of the bladder. Suprapubic cystotomy and perivesical space packed. Bladder not sutured. After removal of suprapubic catheter (16 days later) the fistula would not close and the patient had pyrexia varying from 100° to 102 F°. He was invalided home.

Fig. 4—Case 2, entrance and operation wounds.

The suprapubic fistula continued to discharge urine and pus, and various attempts were made to drain the bladder with a tied-in catheter during the passage to the UK. On April 27 he was admitted to a Royal Naval hospital. Suprapubic cystotomy was performed and the infected perivesical space drained. Radiography showed osteitis of the os pubis (fig. 5A). On May 23 the perivesical space was still discharging purulent exudate. June 16: perivesical tube removed. June 20: suprapubic catheter removed. June 23: passed urine per urethram. Aug. 16: fit and well, all wounds healed, pubis now consolidated (fig. 5B).

(A) (B)

Fig. 5—Case 2, (A) osteitis of the pubis; (B) pubis consolidated.

In this case no attempt had been made to suture the wounds of the bladder. Suprapubic cystotomy was performed, but the prevesical space was packed with gauze and not drained. Infection in the prevesical space prevented the suprapubic wound from healing on removal of the suprapubic catheter, and osteitis of the os pubis followed. When suprapubic drainage was restored and the prevesical space was drained, the osteitis rapidly resolved and the suprapubic fistula healed.

CASE 3.—A boy aged 18 fell 5 ft. from a tree on to a sharp stump, sustaining a perineal wound. Admitted to hospital on Sept. 13, 1943, 3 hours after accident with retention of urine, a lacerated wound of perineum and a laceration of the anterior wall of the anal canal. Pain, tenderness and rigidity in the lower abdomen. Bloodstained urine withdrawn by catheter. At operation, 6 hours after injury, the laceration of the anal canal was found to extend into the bladder above the prostate. The bladder was explored by suprapubic incision. An intraperitoneal perforation of superior surface, 1 in. long, was sutured and the rectovesical pouch and prevesical space were drained. A urethral catheter was tied into bladder.

Sept. 16: poor drainage from catheter of bloodstained urine. Suprapubic cystotomy performed, and an extraperitoneal wound situated behind the trigone sutured. Left inguinal colostomy. Developed signs of mild pelvic peritonitis after operation, which gradually subsided. Oct. 9: suprapubic tube removed. Oct. 24: progress satisfactory; extraperitoneal closure of colostomy. Nov. 14: all wounds healed. Defæcation normal. Some difficulty of micturition, possibly due to angulation of urethra from scarring of bladder base. Treated by regular passage of bougies.

Owing to a delay of 48 hours in suturing one of the bladder wounds, pelvic peritonitis developed. This subsided rapidly after closure of the bladder wound and drainage of the pelvic peritoneum.

CASE 4.—Able seaman, aged 22. Complete early records of this case were lost owing to enemy action. Wounded in right buttock on July 10, 1943, by a piece of mortar shell (fig. 6) and 5 machine-gun bullets, 2 of which passed through the left thigh and 3 through the suprapubic region. The mortar-shell fragment was retained in the hypogastric region. Severe laceration of the bladder and compound fracture of the pelvis. "Emergency treatment to wounds and suprapubic and urethral catheters tied in."

July 12: admitted to hospital; large, gaping wound of buttock, leaking urine; general condition poor. July 19: mortar-shell fragment 5 by 6 cm. removed from the left inguinal region; suprapubic drainage of bladder begun again. Aug. 3: double plaster spica applied to immobilise fractured pelvis. Aug. 8: transferred to base hospital. Suprapubic catheter removed and urethral catheter tied in. Aug. 17: Transferred to another hospital; leaking urine through right buttock. Aug. 20: urethral catheter removed, passed urine normally; plaster spica removed. Aug. 24: catheter replaced. Aug. 26: X rays revealed infective arthritis of right hip-joint (fig. 7). Sept. 2: spica reapplied, suprapubic cystotomy performed and fragments of bone removed from a grossly infected bladder. Fistula from right side of posterior wall of bladder entered right hip-joint, while fistula from left side of anterior wall of bladder connected with the fracture of the left side of pelvis.

On Sept. 25 he arrived in the United Kingdom. Sinuses present in the left groin, large sinus in right buttock, the latter leaking urine. Sinuses opened and freely drained, continuous drainage of bladder by suprapubic cystostomy. Oct. 29:

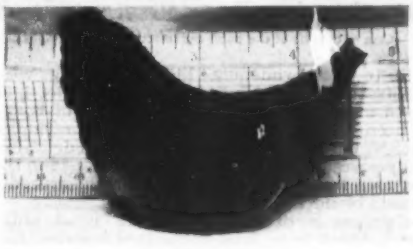

Fig. 6—Case 4, missile.

great improvement, wounds clean and draining well; X rays show decubitus calculi in kidneys. Feb. 1: now ambulatory in hip spica; wounds clean and healthy, no urine draining from right buttock, but sinus not healed.

Failure to suture the wounds of the bladder and drain the perivesical tissues in this case resulted in severe prevesical cellulitis and osteitis of the pubis (fig. 7). No attempt was made to drain the infected cellular tissues, and infection gained access to the hip-joint through the fracture in the acetabulum. There was 9 days' delay before the missile was removed and no attempt was made to drain the track. Attempts to divert the urine by means

of a tied-in catheter were futile. It was fortunate that the large gaping wound of the right buttock led directly to the wound of entrance into the bladder : this not only diverted the urine while the patient was recumbent but also partly drained the paravesical cellular space, thus saving his life.

CASE 5.—A man, aged 24. Wounded in action on July 10, 1943 ; through-and-through wound from right buttock to the hypogastric region. Admitted to hospital with urine leaking from the hypogastric wound and with signs of injury to the abdominal viscera. X rays showed shell fragments in the lower abdomen and right thigh. At operation a through-and-through intraperitoneal wound of the bladder was sutured, together with two small perforations of the ileum. Urethral catheter tied in and wounds of buttock partly excised. July 18 : catheter not draining, urine leaking from buttock ; buttock wound drained and shell fragment removed from its depths. July 25 : poor general condition, catheter not draining well. Suprapubic cystotomy (local anæsthesia). Prevesical space filled w th sloughing necrotic tissue. Large shell fragment removed from behind right ramus of pubis. Bladder, when opened, was found to contain a necrotic splinter of bone, and a large gaping wound of the right lateral wall of the bladder was discovered and this was sutured. Suprapubic drainage of the bladder and drainage of the perivesical spaces.

Progress satisfactory until Aug. 8, when signs of intestinal obstruction developed. Operation revealed considerable pelvic peritonitis and perivesical cellulitis, with loops of bowel densely adherent to each other. Obstruction was relieved, but the patient died the same day.

Two intraperitoneal bladder wounds were correctly sutured at operation, but the bladder was not opened and the perivesical tissues were not explored. No attempt was made to remove missiles from the prevesical space and buttock, and there was inadequate drainage of the track. The conspicuous failure of the tied-in

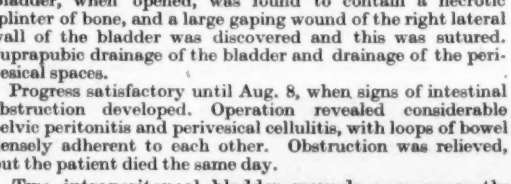

Fig. 7—Case 4, osteitis of the pubis and infective arthritis, right hip-joint.

catheter to provide adequate bladder drainage was again demonstrated. If the interior of the bladder had been explored at the first operation, the piece of bone could have been removed and the third perforation of the bladder would have been seen and sutured. The widespread perivesical infection rapidly developed in this case mainly as a result of leakage from an unsutured extraperitoneal bladder wound.

The prognosis of bladder wounds must always be serious. Apart from fatal associated injuries, the chief cause of death in the 1914–18 war was pelvic cellulitis. Young (1942) records a mortality-rate of 61% in 57 cases among American casualties in France at that time. This appalling rate will only be diminished when the principles of the correct primary treatment of bladder wounds are universally adopted.

SUMMARY

Wounds of the bladder are illustrated by 5 case-histories.

Any wound of the bladder must be closed at once. To leave it unsutured is to invite effects comparable to those following unsutured perforation of the gut.

Failure to realise this is, in our opinion, responsible for the unnecessarily high mortality and morbidity of bladder wounds.

Suprapubic drainage plays a very important part in healing. The tied-in catheter never provides adequate drainage, and its use is strongly deprecated.

Free drainage of the perivesical cellular tissues adjacent to a perforation of the bladder wall is an essential part of the treatment in every case, whether extravasation of urine has occurred or not.

We wish to express our thanks to Surgeon Vice-Admiral Sir Sheldon Dudley, FRS, medical director-general of the Navy, for permission to publish these cases. We are also indebted to Miss Anderson, VAD, for her help in preparing the manuscript, and to Miss Tucker, VAD, for her drawings.

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STOMATITIS DUE TO RIBOFLAVIN DEFICIENCY

H. EVERLEY JONES, MB LOND, MRCP, LIEUT.-COLONEL, RAMC
T. G. ARMSTRONG, MD CAMB, MRCP, MAJOR RAMC
H. F. GREEN, MB CAMB, DPH, MAJOR RAMC
V. CHADWICK, MB MANC, CAPTAIN RAMC

A CAMP in North Africa contained 10,313 men of many races, including Arabs, Berbers, and a mixture of Negro, Ethiopian, Turkish and even European elements. Of these, 1746 (16·93%) were observed to have stomatitis.

The symptoms comprised sore tongue, sore lips (to a lesser extent), some degree of trismus from the cheilosis, and excessive salivation. The pain was variable and did not always correspond with the degree of change observed in the mouth. An early sign was the avoidance of pepper of which these men eat ordinarily a considerable quantity. Salivation was often troublesome, and sometimes so excessive that saliva dripped from the mouth when this was opened for examination.

All patients questioned stated emphatically that, except for their mouths, they felt in excellent health.

THE TONGUE

In the mildest cases the patient complained of soreness at the tip and/or edges of the tongue. These areas were seen to be reddened and the papillæ less conspicuous than usual. As the condition progressed the change spread backwards in a triangular pattern with the base of the triangle at the tip and the advancing apex central and pointing towards the root of the tongue. In addition small islands of atrophy were often present in the unaffected areas.

As atrophy advanced, the redness usually diminished. During this intermediate stage it was not uncommon to see some of the papillæ become enlarged and flat-topped—a process best described as "mushrooming." Of this there were two types :—

(1) Large, pale- flat-topped papillæ ("white mushrooms").
(2) Papillæ with a bright red centre. The tops of these were usually less flattened than 1 ("red mushrooms").

The "white mushrooms" seemed to be altered filiform papillæ, the red ones being enlarged fungiform. They were the more distinct because of surrounding atrophy ; but sometimes the tongue was covered with large "white mushrooms" close together.

In more advanced cases the tongue became increasingly smooth and shiny and fissures started to develop. Generally a central fissure along the median raphe was visible, and branch cracks spread out from this. This appearance was by no means constant, and sometimes fissures were in evidence very early when other changes were in their infancy. In these examples the fissures were usually small and situated at the tongue edges ; they were commonly about 1 mm. deep, but in some cases there were painful shallow ulcers, rather larger than a pin-head.

In the final stage the anterior part of the tongue was completely smooth and atrophic. The papillæ had

disappeared and the superior surface was glazed, often showing a white atrophic patch in the midline. Wasting occurred and the edges were sharp rather than rounded. Indentations caused by the teeth were not uncommon. Occasionally a few petechial hæmorrhages were observed on the under surfaces.

The magenta colour of the tongue described as characteristic of riboflavin deficiency was not seen. These tongues did not differ in their later stages from those of pellagrins.

Slit-lamp findings.—Further examinations of the tongues were carried out by means of the slit-lamp normally employed in ophthalmology which gives a very clear picture at a large magnification. It was found desirable to record the changes in the papillæ in two situations—the tip, and the central area near the median raphe—where the changes were most frequent and severe.

FINDINGS IN NORMAL CONTROLS

The slit-lamp showed many mushroom-like, dome-shaped fungiform papillæ, with the smaller filiform papillæ in the interstices. Both sets of papillæ appeared to be covered with a thick transparent gelatinous membrane through which leashes of capillaries could be seen in full detail. The sparkling clarity and translucency of the papillæ was very striking, and, with their sharp margins and distinctive shapes, made a typical picture. Sometimes the white or yellow tentacles of the filiform papillæ were seen floating in the saliva round the domes of the fungiform papillæ: sometimes the whole length of the pyramidal, or truncated pyramidal, masses of the filiform papillæ could be seen with their short hairs attached to the free ends. At the tip of the tongue the filiform papillæ appeared to have fewer and shorter hairs than in the central area. Indeed, sometimes there were none at all, but the papillæ never lost their clear, translucent appearance and the contained capillaries were sharply defined.

Central area.—Here there were filiform papillæ, but few if any fungiform. An unbroken surface of fine yellowish-white filaments might be seen floating in a matted conglomeration in the saliva. When this was so, no actual papillæ could be detected, for they were covered by their own filiform processes. In other cases many separate papillæ could be seen, separated from one another by clefts produced by the tension in bending the tongue. In these cases the papillæ showed themselves as tall pyramids with steep sides and often with truncated tops. From the tops and upper parts of the sides sprang the many fine filiform processes. Again, the whole papillæ were translucent and through the thickness of the epithelium the contained leash of capillaries was visible.

In the tongues seen in this series the characteristic finding was denudation of the filiform papillæ of their filamentous processes and subsequent atrophy of the papillæ themselves. The tongues appeared to be divisible into two groups, the atrophic and the hypertrophic—of which the atrophic were by far the commoner. The slit-lamp microscope demonstrates the earliest change (loss of the filiform processes) in tongues which may appear macroscopically normal and may indeed have unusually prominent papillæ, giving a false impression.

In both atrophic and hypertrophic groups the tip of the tongue showed the same changes. Both types of papillæ were somewhat swollen, and their margins came together forming a more or less smooth pavement without denudation. The fungiform papillæ sometimes became opaque and their contained capillaries could only be seen as a vague blur through the thinned and opaque epithelium with which they were covered. The filiform papillæ lost their hairs and were seen as naked structures with opaque, pearly-white epithelium covering them and obscuring the blood-vessels. They began to resemble the fungiform papillæ in shape and sometimes it was not easy to differentiate between the two.

In the central area the atrophic type showed three stages.

(1) The papillæ were denuded of their hairs. To the naked eye these tongues did not seem smooth. Microscopically the appearance may be likened to shark-skin. Each individual papilla was seen as an opaque, pearly tooth-like process standing up from the surface of the tongue. The sides and top were bald and devoid of the normal tuft of hair.

(2) In subsequent stages the papillæ themselves atrophied. It looked as though the sharply indented contours of the tooth-like processes were gradually rubbed smooth. In the next stage the papillæ appeared like pebbles but retained their individual identity. Later the appearance was reminiscent of a cobbled street. Still later, even the cobbles had been smoothed away and only the shallow furrows between adjacent "stones" remained—an appearance recalling crazy paving.

(3) Finally, all traces of papillæ disappeared and an entirely smooth surface was left, through which the linear streaks of the underlying blood-vessels could be seen indistinctly.

This description applies also to the hypertrophic variety, except that during stage 1 the filiform papillæ, besides losing their hairs, actually grew larger. The microscopical picture is similar to the shark-skin appearance of stage 1, but the papillæ varied greatly in size and often resembled the fungiform papillæ quite closely, except that, as usual, they were pearly-white and opaque and their blood-vessels could not be seen.

In many tongues all three stages were seen at once, and fields could often be found in which every grade from normal to complete denudation was visible. It is perhaps important to emphasise that in none of the abnormal tongues was there any sign of inflammation.

Histology.—Two sections from tongues in this series were compared with a section from a normal tongue. The keratin layer was of less than the normal depth and the papillæ were flattened. The epithelium showed down-growth, with little ramification. The palissade of growing cells was absent or at most represented by a thin line or isolated groups of cells. In a severe case the total thickness of the epithelium was greatly reduced and the keratinised layer, though not excessive, was relatively prominent owing to the thinning of the underlying growing epithelium. The stroma appeared normal and there was no sign of inflammation.

The changes were therefore: (1) flattening of surface papillæ; (2) loss of ramification of down-growing epithelial processes; and (3) complete cessation of epithelial growth.

LIPS AND CHEEKS

The second important change was an angular stomatitis. This started as a tiny, painful, raw, red area at the commissure of the lips where the mucous membrane joins the skin. The red area spread along the mucosa of the cheek and lower lip, but tended to be confined to a size of less than a square centimetre. Quite early the reddened patch became covered with white epithelium, looking like sodden blotting-paper, which could not be scraped off easily. This white coating sometimes extended to form quite large sheets which might be criss-crossed by cracks, giving the appearance of sun-dried mud which had flaked. Concurrently, small fissures often developed in the skin at the corners of the mouth; they were apt to be very painful.

The above changes were not infrequently unilateral. Or one side usually showed more advanced changes than the other.

The changes tended to spread to the mucous membrane of the lower lip. Here the raw areas were often larger and the epithelial plaques thicker. In several advanced cases oval ulcers developed and caused much pain no doubt because of secondary infection. These lip changes nearly always showed themselves near the skin margin, the gingival parts being spared.

A less common finding on the mucosa of the lower lip was a group of small papular swellings, each about the size of a pin-head and usually slightly paler than the surrounding reddened mucosa. They varied in number from two or three to a score and never increased in size. They were mostly near the gingival margin of the mucous membrane. The connexion between these papules and the more usual changes described is obscure. It was thought that the papules might be an early stage in the process, but this is unlikely because they were nearly always near the gingival margin, whereas the other changes were rarely in that position. Also, no papule was ever seen to "break down" into the commoner lesion.

One striking observation was the sparing of the upper lip. In only 20 of the 1746 cases affected were lesions seen on the mucous membrane of the upper lip, and in each of these they were small. One exception was a

case in which the mucous membranes of both lips were covered by a continuous sheet of white epithelium.

Some of the cases in which the lips were affected could be detected before the mouths were opened, because a fine white line (" chalk line "), due to epithelial changes, was visible running from the angles of the mouth along the labial margins.

PALATE

The incidence of changes on the palate was about 5%. They took the form of raw, red areas similar to those on the lips, but they always had a serpiginous outline. The edges were generally overhung with a rim of sodden, white epithelium, but the plaques present on the lips were never seen. A common site for these lesions was well back on the hard palate, but occasionally there was a larger area of redness near the alveolar margin.

FURTHER INVESTIGATION

A group of men suffering from these changes was admitted to a British general hospital. Their ages varied from 21 to 48 and they were selected at random.

None showed wasting. Their skin was glossy and healthy, and no pellagrous changes were seen. No case showed scrotal changes. Four had slight seborrhœic overgrowth in the nasolabial folds, but this sulphur-granule appearance is not uncommon in North Africans, and 20% of 300 controls showed it in mild degree. The nails were well formed and strong, without koilonychia or fissuring.

Routine examination revealed no evidence of disease. Two out of 20 men had red-cell counts below 4 million, but these lower counts were not associated with more severe stomatitis. Leucocyte count were within normal limits in 20 cases. The stools contained no excess of fatty acids or undigested food, and on sigmoidoscopy (10 cases) no change in the bowel mucosa was noted, the anal canals and perianal regions being also normal. Fractional test-meals (21 cases) revealed no definite abnormality; the free HCl was regarded as normal in 12, and high in 6, while 3 had achlorhydria. The blood-urea (10 cases) varied from 18 to 42 mg. per 100 c.cm., and 10 men chosen at random had negative Kahn tests.

A dental officer examined 20 cases and pronounced the gums healthy in 18. There was some sponginess in 2 and dental caries was noted only once.

As vascularising keratitis is said to be associated with mouth changes in ariboflavinosis, 75 cases were examined by an ophthalmic specialist who reported that all showed increased vascularity in mild degree but all were suffering from trachoma which is almost universal in North Africans. This change is characteristic of trachoma.

Swabs were taken from the mouths of 30 sufferers, of whom 8 produced Vincent's organisms in moderate numbers, and 1 monilia. The rest showed a normal mixed flora. There was nothing to suggest that infection was a cause of the condition, and local treatment with copper sulphate (5%), 'Protargol' (5%), and flavine (2%) produced no improvement.

TABLE I—ANALYSIS OF DIET, SHOWING DAILY INTAKE OF CONSTITUENTS

Diet		Protein (g.)	Fat (g.)	Carbohydrate (g.)	Calories	Calcium	Iron	Vitamin A (IU)	Vitamin B (IU)	Riboflavin (mg.)	Nicotinic acid (mg.)	Ascorbic acid (mg.)
S.1	..	140	116	450	3323	425	31	2775	953	1·61	26·4	125
S.2	..	125	123	420	3250	430	27	1839	903	1·45	17·1	106
S.2	March	101	81	400	2716	359	26	1830	706	0·97	12·8	59·9
	April	101	81	405	2736	357	26	1830	704	0·97	12·9	55·0
	May	111	97	367	2897	376	26	1833	773	1·08	11·2	58·5
	June	114	104	415	3002	401	26	1797	814	1·28	12·1	92·0
S.3	..	149	355	571	6212	911	34	3510	991	1·73	25·6	151

The waste matter leaving the camp contained no food, and all food was weighed on entry. For practical purposes it seems fair to assume that the entire rations were evenly distributed each month among the whole population.

RELATION TO DIET.

From December, 1941, to March 17, 1943, the men had received the standard diet S.1 (see table I). From March 17, 1943, until the end of June, 1943, diet S.2 was issued, but there were considerable deficiencies as shown in the table.

All the men under our control were examined by one of us between March 18 and 25, and at that time no abnormalities in the mucous membrane of the mouth or tongue were seen. The first cases of stomatitis and glossitis came to light in the second week in June—nearly 10 weeks after the alteration of diet. A useful control is provided by a group of 670 men in another camp who did not change from diet S.1 to diet S.2 until May 20. Here the first cases of stomatitis appeared on July 24, 9 weeks after the alteration of diet.

It was noted that none of the 36 men employed in the bakery developed stomatitis. Their diet and habits were the same as those of the other prisoners, but they were accustomed to test the saltiness of the dough by tasting it, and by this means they may have obtained enough yeast to keep them healthy. The 50 cases of pulmonary tuberculosis in the camp hospital received, besides the standard diet, one pint of fresh milk and one egg daily, and none of them developed stomatitis.

TABLE II—RESPONSE TO RIBOFLAVIN (100 MG. IN FIVE DAYS)

Case	Before treatment	After treatment
1	Tongue: anterior half quite smooth. Fissures + Angular stomatitis + R & L. Lower lip: mild changes. Pain and salivation +.	Tongue: smoothness gone; papillæ clearly visible. Angular stomatitis: only a trace R. Lip apparently normal. Pain and salivation ceased.
2	Tongue: raw edges; teeth indentation; fissures +. Angular stomatitis: slight changes. Lower lip: changes (conspicuous) with early ulceration. Pain in lip +.	Tongue: rawness gone; indentations only just visible. Angular stomatitis: just visible. Lips: slight patchy erythema. Pain cleared.
3	Tongue: dorsum completely smooth; "white mushrooms" at edges. Angular stomatitis + R & L. Lower lip: papillæ present and usual changes +. Pain and salivation +.	Tongue: papillæ everywhere visible and even slight fur. Angular stomatitis: much improved. Lip: faint blotting-paper appearance. No pain nor excessive salivation.
4	Tongue: triangular area of atrophy. Angular stomatitis + R & L. Moderate pain.	Tongue: apparently normal. Angular stomatitis: changes hard to see. Pain ceased.
5	Tongue: atrophy and fissuring; red mushrooms." Angular stomatitis: moderate degree. Lower lip: papules and large raw areas with much sodden epithelium and commencing ulceration. Pain and salivation: severe.	Tongue: papillæ visible everywhere; fissures almost healed. Angular stomatitis: changes completely disappeared. Lower lip: changes completely disappeared. No pain or salivation.
6	Tongue: atrophy and fissuring. Angular stomatitis: moderate. Lower lip: swollen, red; patches of sodden epithelium. Palate: red serpiginous patches. Pain marked.	Tongue: papillæ everywhere visible. Angular stomatitis: just visible L. Lip: almost normal. Palate: faint erythema at site of patches. Pain gone.

It was found that the condition cleared rapidly on addition of milk, meat or eggs to the diet. Other remedies tried were:—

Calcium lactate, given in 30-grain doses daily to 10 men for 10 days. No improvement.

Red palm oil, containing 3800 IU vitamin A per oz., given in doses of 1/10 oz. daily to 200 men for 10 days. No improvement.

Oleum vitamini (*BP*), containing 2250 IU vitamin A and 250 IU vitamin D per drachm, given in one-drachm doses daily for 10 days. No improvement.

Yeast, fresh or dried, given in doses of ½ oz. daily. Rapid cure. Fresh yeast caused the soreness to diminish or vanish within 4 days, and most of the mouth changes disappeared in 7–10 days.

Thus the cause of the stomatitis was evidently deficiency of a factor present in milk, meat, eggs and yeast, and further attention was directed to two vitamins present in yeast—nicotinic acid and riboflavin.

Nicotinic acid.—The table shows that during their four months' on diet S.2 the men had an average of 12·28 mg. nicotinic acid daily. (The normal intake is variously estimated at 5 to 25 mg., and an amount persistently lower than 8 mg. is said to cause pellagra.*) Five men with stomatitis receiving diet S.2 were given a supplement of 600 mg. nicotinic acid by mouth daily for 5 days, but their stomatitis remained unchanged.

Riboflavin.—Diet S.2 provided on the average 1·08 mg. riboflavin daily, sinking to 0·97 mg. in April, whereas the normal requirement is estimated at 2–3 mg.* The methods of cooling, storing, and cooking the foods were not such as to cause appreciable loss of this factor.

By courtesy of the consulting physician, MEF (Brigadier D. E. Bedford) a small quantity of riboflavin (Meads) was obtained. Of 20 cases of stomatitis admitted to hospital for investigation and fed on diet S.2, 6 (including examples of all the observed changes) were given 10 mg. riboflavin twice a day for 5 days. While the condition of the 14 controls remained the same, the 6 treated patients all showed striking improvement (table II). As early as the second day they became full of thanks, which is the more remarkable because these people are usually grudging in their gratitude.

When the camp population was given diet S.3 (table I) stomatitis ceased among them.

SUMMARY

Stomatitis was observed in 1746 of 10,313 men in a camp in North Africa.

On a diet containing an average of 1·61 mg. riboflavin per day the camp population had been free from stomatitis. It developed about two months after the daily riboflavin intake was reduced to about 1 mg. per head, and it was not abolished by an intake of 1·28 mg. in the following month.

The stomatitis yielded rapidly to treatment either with riboflavin (100 mg. in five days) or fresh yeast (½ oz. daily).

The lesions on the tongue were studied with a slit-lamp. So far as we know, this has not been done before. The method is useful and might be exploited further.

This investigation could not have been made without the enthusiastic help of Lieut.-Colonel G. Pascoe, commandant of the camp. We also received invaluable help from Major G. Raeburn, RAMC, pathologist, Major C. Cockburn, RAMC, ophthalmologist, and Captain J. H. Thomson, AD Corps, dental officer. The work was done in a desert hospital where works of reference could not be obtained.

EARLY MOVEMENT IN THE TREATMENT OF CLOSED FRACTURES

B. H. BURNS
MB CAMB, FRCS
SURGEON TO ST. GEORGE'S HOSPITAL AND TO BOTLEYS PARK WAR HOSPITAL

R. H. YOUNG
MB CAMB, FRCS
SURGEON TO BOTLEYS PARK WAR HOSPITAL

THE fashion in treating fractures, as recent writings show, is tending towards more and more immobilisation. Fractures of the femur are treated on a Thomas splint without knee-bending for about 14 weeks until union is established[1]; fractures of the tibia are not allowed to bear weight until they are united.[2]

In the past, the wheel has turned from rest to mobility and now it seems almost to have gone full circle back to rest again. The dominating influence in the seventies was Hugh Owen Thomas, with his "rest, enforced, uninterrupted and prolonged." On account of the neglect of treatment of soft parts and the stiffness that this involved, there was a reaction, led by Lucas Championnière, who advocated early movement, even at the expense of reduction of the fracture. This went too far to the other extreme. The need for a compromise was seen by Böhler (1928) who after reduction fixed the fracture, and the joints above and below it, in plaster, at the same time encouraging the fullest activity within these limits. Patients with a fracture of the tibia were allowed to walk in their plasters and those with fractures of the femur, treated by traction, were allowed to move the knee after 6 weeks.

In this practice, and even more in the writings mentioned above, treatment tends to wait for union of the fracture before attending to the soft parts. True, the patients are encouraged to do static contractions, but this is a poor substitute for free voluntary movement of all the joints; and treatment of soft parts is difficult when the limb is encased in plaster; for however much the rest of the body is exercised the joints above and below the injury remain immobilised.

However there also is a movement in the opposite direction. Perkins[3] says: "If there is a new school of thought regarding fractures, it is a school which teaches that bone and soft-part treatment are of equal importance and often should be simultaneously undertaken." This school has not as many pupils as it deserves. We support it, and this paper attempts to show that quicker and sometimes better results can be obtained by the use of early movement of the joints. Our practice has been to obtain as full movement as possible as early as possible without endangering the position of the fragments or delaying union. In some fractures where it might delay union, early movement is made possible by internal fixation.

* Eddy, W. H. and Dalldorf, G. The Avitaminoses, London, 1941.

DISADVANTAGES OF PROLONGED IMMOBILISATION

The main disadvantage of long immobilisation is the stiffness of the immobilised joint. This stiffness is often overcome later, but in some instances a full range may never be restored, and in any case many weeks of rehabilitation will often be required to overcome the stiffness. In the elderly the danger of stiffness is naturally much greater and more difficult to treat.

Immobilisation in plaster is inadequate unless the joints above and below are also included in the plaster. This often entails for mechanical reasons the immobilisation of many more joints than the two nearest to the fracture. For instance, in a fracture of the shaft of the tibia the subastragaloid, the midtarsal and the tarsometatarsal joints are fixed, and many even advocate elongation of the plaster so that flexion of the toes is prevented. Again, a shoulder spica for a fracture of the humerus involves the immobilisation of every joint from the carpometacarpal to the lumbosacral.

In the lower limb, as an additional disadvantage, the circulation comes to rely on the external support of the plaster, so that on its removal a semi-rigid 'Viscopaste' dressing for 8 weeks is recommended, to make the transition from absolute fixation to complete freedom more gradual, and thus give time for the vascular tone to be restored. Another disadvantage, particularly in the elderly, is the discomfort of an extensive plaster; a patient over 50 finds a plaster jacket or a hip-spica hardly tolerable. Occasionally it is even dangerous.

ADVANTAGES OF MOVEMENT

The less plaster there is, the less stiffness there will be. Where you can dispense with plaster and institute early movements to all the joints, stiffness from adhesions will not occur, except where there is gross disorganisation or deformity of a joint. A full range will have been recovered by the time the bone is united and often long before. The circulation is rapidly restored to normal and the loss of vascular tone which follows long immobilisation in plaster is avoided. By the time the bone has united the limb appears normal in range of movement, colour and absence of œdema.

It has been said that early movement delays the disappearance of spasm and increases effusion. In our experience this is not so, so long as movements are not forced. Spasm is increased only if movements are pushed beyond the extent that they are voluntarily permitted.

Broadly speaking, fractures may be divided into two groups—those that unite easily and those that unite with difficulty. In the first group are fractures of the ribs, the clavicle, the femur, oblique fractures of the humerus, metacarpals and metatarsals, and fractures of cancellous bone. In these fractures, union will take place without firm fixation of the fragments. They do not require immobilisation for the sake of obtaining union. In consequence, the amount of splintage needed is very small and early movements of the neighbouring joints can be encouraged. Treatment can concentrate on soft parts; for instance, a patient with a fractured femur on traction can move the knee, and a patient with a spiral fracture of the humerus, treated with a U-shaped slat can move the shoulder and elbow; in most fractures of the metatarsals plaster can be avoided, since shoes give all the support necessary; and a shoe can be taken off for exercises.

The second group—those which unite with difficulty—includes fractures of the neck of the femur, transverse fractures of the shaft of the tibia, shaft of both bones of the forearm and some transverse fractures of the humerus.

In these fractures, on account of the difficulty of obtaining union, the chief consideration is fixation, which must be firm and of long duration. If this involves use of plaster or other splint preventing movement of joints, subsequent stiffness is particularly troublesome. However, the firmest possible fixation is obtained by internal splintage, and this will allow movements of the joints at once. Further, with internal fixation anatomical reduction is obtained and there is no danger of displacement or disalignment. The fracture is no longer a problem except that it should be protected from heavy strain.

It is in fractures of the radius and ulna that internal fixation finds its fullest value. By other means it is often impossible to maintain reduction; and if perfect reduction is not maintained there will be some impairment of function afterwards. After plating, almost full function, except for lifting of weights, is restored by the end of the first fortnight. The patient can perform his own toilet and other non-strenuous tasks. One patient, without our permission, drove a car at a fortnight. Internal fixation, firm enough to dispense with external fixation, can also be achieved in the tibia and humerus.

Internal fixation loses most of its point if it is not sufficiently firm to make external splintage unnecessary. Nailing a fracture of the neck of the femur was a great advance in this direction, but there has been a much greater reluctance to take advantage of a comparable opportunity in fractures of the tibia and radius and ulna. The reason most often given is the danger of sepsis, but when the surgeon is trained in bone surgery and the operation is done in a proper setting, sepsis should not occur; the danger of it never prevented anyone from pinning a femur or wiring a patella or olecranon.

FRACTURES INTO JOINTS

So far we have been discussing mainly fractures of the shafts. In fractures involving joints early movement is no less desirable. In general, and with the exception of the scaphoid, these fractures are through cancellous bone and therefore readily unite. Fixation is not necessary to obtain union. It is only required to maintain a corrected position after reduction.

With very few exceptions it may be said that in fractures involving a joint the maximum displacement occurs at the time of injury; and that so long as great strain—such as weight-bearing—is not allowed further displacement will not occur. Therefore, if there is no deformity, or if the deformity is accepted because it is not possible to correct it, there is no object in putting on a plaster. Only after reduction of displacement is fixation necessary.

To amplify this statement about fractures into joints:

1. If there is no deformity, plaster or other fixation is unnecessary. As the force of the injury has not produced displacement or dislocation, movements of the joint, or even, in some instances, weight-bearing, will not do so. Thus, a first-degree external rotation fracture of the ankle, or a crack fracture of the os calcis, can be allowed to walk unprotected. This would seem to be stressing the obvious, but it is astonishing how often plaster is applied unnecessarily, especially by those with no great experience. One should ask oneself: "Is your plaster really necessary?" If plaster is avoided, movement can be started at once.

2. When a deformity is accepted on account of the impossibility of reduction, as in some grossly comminuted fractures, there is little object in putting on a plaster. There is no point in holding an unimproved position in plaster, except in rare cases, where ankylosis is aimed at.

3. Only after reduction of displacement is fixation necessary, and this can be achieved either by plaster or internal fixation. The latter is possible, and indeed preferable, in many instances, such as fractures of the internal malleolus, anterior marginal fractures of the ankle, diastasis, some fractures of tibial and femoral condyles. Here again, when operation is performed, internal fixation should be as effective as to make it possible to dispense with external fixation.

COMPRESSION OF CANCELLOUS BONE

A fracture of cancellous bone which is badly compressed or comminuted is a difficult problem. The disadvantages of prolonged immobilisation in an attempt to obtain consolidation in a corrected position may sometimes outweigh the advantages; for, even after prolonged fixation in plaster in an extreme position, the correction may not be fully maintained. Reduction merely opens up a space which, to some extent—but rarely completely—fills with bone. There is some permanent loss of bony tissue. This can be well seen in some fractures—e.g., severe compression fractures of the spine, pertrochanteric fractures of the femur, and in the type of bumper fracture in which the whole of the condyle is compressed; and the difficulty of obtaining a good anatomical result in a Colles' fracture with gross compression is well known. In all of these fractures it is not uncommon to see a return of the deformity after removal of external splintage. In some of them the time of immobilisation is diminished and a better anatomical correction is obtained by operation. Severe comminuted fractures of the spine can be held corrected by a posterior graft; pertrochanteric fractures by a properly placed pin; and in some bumper fractures the deformity can be corrected and the loss of bone made good by lifting up the depression and filling the gap with borrowed bone.

RESULTS OF TREATMENT OF REPRESENTATIVE FRACTURES

We have endeavoured to follow the above-mentioned principles in our practice, and a brief account of our results in representative types of fracture follows:—

I. *Fractures of the shaft of the femur* (treated by traction by Steinmann's pin through the tibial tuberosity).—The problem of the fractured femur is the problem of the stiff knee; for union takes place readily unless the fracture is distracted. Of our cases, 35 had early knee movement and 21 had no movement until the fracture was united. The average time of union, judged from the time of leaving off the traction, was 13 weeks in each group. The rate and completeness of the restoration of function is strikingly different, however. Of the 35 with early knee movement all but 4 had more than 90° at six months, and 13 had full range at six months. Of the 21 with late knee movement, 3 had a full range at 6 months, 5 had 90° at 6 months, and 13 had less than 90° at six months.

II. *Pertrochanteric fractures* (treated by nailing with a long SP pin inserted very obliquely into the shaft).—There were 20 patients, excluding one failure of technique. Their average age was 68¼. The average time for the start of unprotected weight-bearing was 12½ weeks. There was a full range of movement of the hip and knee at an average of 9 weeks. The great advantage of this method of treatment is the comfort of the patient, who is free to move about in bed. Moreover, the danger of coxa vara and fixed external rotation is avoided. It is not possible to pin these fractures if there is much comminution.

III. *Fractures of the tibia.*—A group of 34 patients with transverse fractures of the tibia were treated by plating with a long 6 hole plate, with no external fixation in the early stages, and with movements from the start. In 31 union took place in an average of seventeen weeks; 3 were grafted for non-union at about five to seven months and took a further three months to unite. Of the 31, 19 had no plaster throughout and all these had a full range of movement of the knee and foot at three to four weeks. Walking was started at six weeks. A group of 12 had plaster after about four weeks, when a full range had been restored and they were then allowed to bear weight. The plaster was applied on account of the lack of rigidity of fixation, due mostly to comminution. It took an average of three weeks to get a full range after the plaster was removed. Subsequent stiffness is much less troublesome when a limb in which a full range of movement has been restored is put in plaster, than when plaster is applied immediately after the injury.

IV. *Compression fractures of the spine (excluding cervical spine).*—When we have received patients from other hospitals in plaster with the fracture unreduced, or when we have been unable to reduce the displacement, we have removed the plaster and instituted early movement, and have allowed walking at three weeks. Also, we have not attempted to reduce fractures in the elderly or minor degrees of compression. Of a total of 55 cases, 30 have been treated in this manner. Of these 30, treated

with early movement, 24 had a full range of movement and no symptoms at six weeks, and those that have been followed up are still free from symptoms. The other 6 had some pain at three months, and 4 of them still have some pain. This compares favourably with those treated in plaster, who cannot have a full range before six months—i.e., two months after the removal of the plaster. We have examined the X-ray films of those patients treated with early movement and no plaster, and we have only found 6 cases in which there was appreciable increase of the deformity. In none was it as much as ¼ in. A few severely comminuted fractures have been grafted at an early stage and are excluded.

V. *Fractures of the external tibial condyle.*—We have seen 36 bumper fractures; 21 have been treated by early movement and light traction for some weeks and no weight-bearing for twelve weeks; 15 were treated in plaster. Those in each group were of comparable severity and in both groups a proportion were operated on to improve the position, or for fixation. Of the 21 with early movement, 18 had a full range at nine weeks and 3 had a half range at twelve weeks. Of the 15 immobilised in plaster, 4 had a full range in twenty-five weeks, 8 had half range in eighteen weeks, 2 had a third or less at a year and one required arthrodesis. The position was equally well maintained by either method.

CONCLUSION

The stage has passed when we have a right to be satisfied by union of the bone in good position: that can be expected in most instances. Not only is full restoration of function required, but we must concern ourselves with its early return. This is greatly facilitated by early active movement of the joints; and in some fractures internal fixation makes this possible. By early movement, stiffness is prevented and progress towards full recovery is smooth and rapid. The patient will have little need of rehabilitation. But if, from immobilisation, the joints have become stiff, he will need rehabilitation in all its manifold varieties.

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Medical Societies

BRITISH ORTHOPÆDIC ASSOCIATION

THE Spring meeting was held at Leeds on May 12 and 13 with Mr. ST. J. D. BUXTON, the president, in the chair.

FOLLOW-UP OF CARTILAGE OPERATIONS

Major R. H. METCALFE, RAMC, had studied two large series of cases in consecutive years in the same military hospital. In 1942, 600 knee cartilage cases had been seen in outpatients, of which 100 were admitted to the wards, and of these 60 had been operated on. In 1943, 800 cases were seen, 170 were admitted, and there were 100 operations. Through the Army system of medical categorisation a convenient and accurate follow-up was possible. During the first year the average time off duty for those operated on was nine weeks and the ultimate category was A 60%, B 28%, C 8%, E 4%. Category C means a man with a severe defect of locomotion, unfit for overseas service, and E means discharge from the Army. The most common cause of a bad result was abnormal anteroposterior mobility, which was not in most cases the result of operation; less common causes were osteochondritis and osteo-arthritis. The question of military morale undoubtedly affected the result. The first year's results suggested also that "rehabilitation" had been too vigorous and tended to arouse latent anxiety. In 1943 more stringent physical and psychological selection of cases for operation was practised, with a shorter period off duty and less vigorous after-treatment. By getting the soldier back to his unit within the permitted period of three weeks before being "Y" listed the best results of all were obtained. This was possible in 20% of all the cases operated on in 1943, and the present categories of these men were A 81%, B 14%, C 5%, and none has been discharged. For the entire 1943 series the present categories were A 71·5%, B 20·5%, C 7%, E 1%.

Major-General D. C. MONRO emphasised the recognition of military unit morale as a factor in the recovery from this and other injuries.—Brigadier W. R. BRISTOW indicated the need for improved treatment in knee cases, as is shown by the figures for 1058 cases operated on in Army and EMS hospitals in 1943: A 51%, B 35%, C 9%, E 5%.

FRACTURES OF THE SCAPHOID

Major J. STEWART, USMC, said that fracture of the carpal scaphoid is the most commonly undiagnosed fracture and urged the need for multiple radiograms on different occasions in doubtful cases. Difficulties were often experienced in distinguishing new from old fractures and in estimating the nature of vascular changes as a guide to prognosis. Major Stewart's series comprised 205 cases treated within 15 months, of which 134 cases had been followed to the complete end-results; 129 had been treated in plaster alone, and of these 127 had full union and mobility, freedom from pain and full grip, and had returned to full duty. The procedure adopted was immobilisation in plaster extending from the base of the thumb nail, the proximal palmar crease, and the heads of the metacarpals behind to within an inch of the elbow-joint. The wrist is maintained in 10–15° dorsiflexion but with no lateral deviation. During the application of plaster the thumb and fingers are held as though grasping a football. This allowed full mobility of the fingers afterwards and practically normal activity for the hand. The period of recovery after removal of plaster is greatly shortened (nearly 4 weeks). The plaster is changed every 3 or 4 weeks, and the condition checked radiologically, great care being taken to prevent movement of the wrist and thumb during these procedures. This report supported the orthopædic teaching that with early diagnosis, accurate reduction and adequate immobilisation for a sufficient period one can expect solid bony union (average 11 weeks). Loss of Army man-power due to delay in union was directly attributable to failure to observe these principles. Every sprain or injury in the region of the carpal scaphoid should be considered a fracture until proved otherwise. In fractures coming late for treatment the time of recovery was prolonged, but neither vacuolation nor sclerosis at the site of fracture, providing the proximal fragment is viable, need be regarded as vitiating recovery with long-continued fixation.

MARCH FRACTURES

From over a hundred march fractures of the metatarsal bones in Army recruits Captain E. WYNNE JONES, RAMC, found that the incidence was 2·8% and that the fractures occurred towards the end of recruit training in men generally of poor physique and posture with long, narrow feet, in whom there had been mechanical overloading of the metatarsals. By more careful gradation of route marches for the young recruit the incidence of march fractures had been reduced to 0·9%. Immobilisation in plaster gave satisfactory results, but a simpler and more time-saving method was a metatarsal pad applied to the foot with adhesive strapping, with restriction to the wearing of Army boots throughout treatment. Modified training (everything except road-work, running, jumping and obstacle-course work) is begun immediately and continued until all tenderness has disappeared (average 21 days).

OPERATIVE TECHNIQUE

Lieut.-Colonel GLEN SPURLING, USMC, described the use of finely drawn '*Tantalum*' *Wire for Nerve Suture* and of tantalum foil as an enclosing sheath at the line of junction to prevent adhesions. This metal, besides possessing qualities of malleability and tensile strength, is, he said, completely inert to living tissues.

Captain D. KILLORAN, USMC, described a method of *Coagulum Contact Skin-grafting* similar to that employed by Sano of Philadelphia (see *Lancet*, Feb. 5, 1944, p. 189), but with modifications necessitated by lack of

heparin. Plasma and a leucocyte cream were prepared from oxalated blood; the plasma is applied to recipient areas and the cream painted on the deep surface of the graft. This procedure had been adopted for battle wounds a few days after initial debridement when there was no other means of closing a large skin defect. After grafting, the limbs were immobilised but pressure dressings were not applied.—Lieut.-Colonel BRICKER, USMC, doubted how far such a coagulum glue could replace suture and pressure fixation of the graft. Certainly it was a useful adjunct. Grafts should not be washed in saline before application because this removed natural adhesive.

PAPERS FROM THE LEEDS SCHOOL

Prof. A. DURWARD described his researches into *Blood Supply of Nerves*, which confirmed the importance of the longitudinally disposed intraneural vessels which freely anastomose and convey blood for long distances within nerves even after division of the many small vasa nervorum which enter laterally.

Prof. M. J. STEWART, speaking on the characteristic histology of *Benign Giant-celled Synovioma of Tendon Sheaths*, said that the intracellular presence of hæmosiderin or lipoids was merely a demonstration of phagocytosis by the polymorphous connective-tissue cells of which the tumour was composed. The presence of foam cells did not justify the description of certain of these tumours as "xanthomas." In fact, the "xanthic" reaction wherever seen was a local phagocytic response by connective-tissue cells to the chemical conditions of their surroundings.

Mr. A. S. JOHNSTONE described the work of Batson of Philadelphia on the *Vertebral Venous System as a Mechanism for the Spread of Metastases* and his own investigations along the same lines. There is a freer connexion than is commonly recognised between the veins of the prostate and those of the vertebral column, and the vertebral venous system may provide a means for some of the occasional spread from this and other organs, but it by no means accounts for the spread of cancer by the classical means already accepted.

Dr. J. R. NUTTALL described the results of *Treatment of Osteo-Arthritis by Deep X-ray Therapy* in 259 cases, of which 164 were followed up. There had been no particular selection of cases for treatment. Three months after the completion of treatment 17 patients had complete relief of pain, 90 had incomplete relief, and 57 received no benefit at all. Smaller joints seemed to show the best results. A second course of treatment sometimes gives more relief than the first one.

Mr. L. N. PYRAH reviewed 10 cases of *Generalised Osteitis Fibrosa*, 6 of which had been admitted for spontaneous fracture. All of the patients were found to have parathyroid tumours which he had removed. Reliance was placed entirely on blood-calcium and phosphorus estimation, except in one case in which calcium-balance experiments had been carried out. The blood-calcium figures ranged from 12·5 to 20 mg. per 100 c.cm. and the blood-phosphorus in every case was low, usually 2–2·5 mg. per 100 c.cm. The plasma-phosphatase was raised in every case. These estimations should be done by a chemist who was constantly performing them; errors in chemical technique sometimes vitiated results.

Mr. REGINALD BROOMHEAD and his associates demonstrated a series of orthopædic cases, including a group of people who had been operated on for intractable metatarsalgia with good results; the shaft and head of the metatarsal was denuded and after being osteotomised near its base was rotated through 180°.

Reviews of Books

Principles and Practice of Rehabilitation

JOHN EISELE DAVIS, MA, SC D, Veterans Administration Facility, Perry Point, Md. (Barnes. Pp. 211. $3.)

Dr. Davis does less than his introduction promises; instead of a usable psychology he proffers a diffuse review of many aspects, in which the treatment of people with mental disorder occupies the largest place. He refers copiously to the literature of industrial psychology and rehabilitation in its various guises, and he says nothing that is far-fetched or unacceptable even to doctors who believe their common sense to be almost vox Dei: but the lay-out of his book is too loosely knit, and the echoes of his earlier work, *Principles and Practice of Recreational Therapy for the Mentally Ill*, are too numerous for the average reader to find in it what its title suggests. Even on its own ground, the rehabilitation of people with neuroses, many of the difficulties met with in practice are slurred over, and the details of management, which are all-important, are subordinated to discussion of general principles. It is plain that Dr. Davis's experience has been chiefly with the insane, whereas psychiatrists who have been occupied with the rehabilitation of the neurotic know how often in their experience the road winds uphill—more so than with patients in a mental hospital, from whom, since less is expected, a painful inch may seem a big gain, and who when they recover may do so completely, without painful backslidings. If Dr. Davis were to compress his book and call it *Rehabilitation of the Mentally Ill*, it would be a useful manual. Some psychiatrist or psychologist will doubtless presently set about writing a good compendium of the psychological principles and practice of rehabilitation in its wider and now customary sense; he will find Dr. Davis's book a helpful storehouse.

Blood Groups and Transfusion

(3rd ed.) ALEXANDER S. WIENER, MD, New York. (Baillière. Pp. 438. 41*s*.)

THIS book has been a standard work of reference since the first edition appeared in 1935. The third is considerably larger and has been extensively revised. Two new chapters have been added on the transfusion of stored blood, plasma and serum, and the Rh factor. The inclusion of the practical side of transfusion, and the preparation of fluid and dried plasma and serum are perhaps out of place in a book which has become a classic as a guide to the intricacies of the blood-groups, since there are other fuller works on these subjects. For the specialist they are sketchy, making little reference to recent British work, while for the beginner they assume more than a passing familiarity with the subject. Wiener's name is associated with the discovery and description of the Rh factor but the chapters on this property of the red cell are disappointing, even if one allows that an author of a book which deals with a rapidly expanding field is always at a disadvantage. The book however maintains its high place as a standard work of reference.

1943 Year Book of General Medicine

Editors: G. F. DICK, MD, and others. (Year Book Publishers; H. K. Lewis. Pp. 784. 19*s*.)

SOMEWHERE between the catalogue of abstracts and the review lies the province of the year book. If it is too near to the former it loses its appeal to the general reader; if too near to the latter it provokes the experts. This book strikes the balance well: each contributor is an acknowledged expert in his own field, yet by assigning to him a whole field of medicine, instead of limiting him to the particular patch which he had cultivated, perspective is preserved. The result is a book which is both stimulating and comprehensive, and one which can be recommended to physicians in general.

Illustrations of Regional Anatomy

(5th ed.) E. B. JAMIESON, MD EDIN. (Livingstone. 75*s*. the set of 7 sections.)

THIS fifth edition includes 319 plates comprised in 7 sections. As the author rightly says: "The publishers have not grudged expense in adding colour." Colour has indeed been added with an unstinting hand and the student who derives his knowledge of anatomy from Dr. Jamieson's plates will acquire a truly vivid picture of the ideal structure of the human body. It is to be hoped that after the delightful study of purple mucous membranes, emerald green fascias, vivid blue cartilages, orange glands, and golden teeth and eyes he will not find the actual human body rather disappointing.

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THE LANCET

LONDON: SATURDAY, JUNE 3, 1944

FOOD AND THE HEALING OF WOUNDS

THE second front, even if instantaneously and completely successful, will inevitably bring a wave of casualties to this country, and it will be our business as doctors to see that these men return to active life with as little waste of time and health as possible. Now is the moment to check over our knowledge and our plans, so that when the autumn comes we will not feel that our recovery-rates might have been higher if only we had done those things which, in retrospect, we obviously ought to have done. Preventive medicine has done its bit and we can be proud of its record in the Middle East, advances in the treatment of wounds have been spectacular, but there still remains the patient himself who must always be a first charge on the physician. The importance of warmth, the benefits of resuscitation, and the treatment of shock have been emphasised again and again; nursing has been brought as near perfection as possible; but recent work has found us fresh opportunities for medical treatment, and incidentally for clinical research.

The story is not altogether a new one. It began long before this war and most of us had come to recognise that previous good health and nutrition are great assets to a wounded man.[1] But there seems to be more in it than that. CUTHBERTSON [2] pointed out in 1930 that if people who had sustained serious fractures were studied by means of balance experiments it was easy to demonstrate that they invariably lost large amounts of nitrogen and phosphorus. These observations have been amply confirmed, although a maintenance of nitrogen and phosphorus balance has not yet been proved to expedite materially the healing of fractures. It has, however, been established that in extensive burns there may be an enormous loss of body protein at the injured sites, so much so that even with multiple transfusions the serum proteins may become dangerously low. LOGIE [3] has urged that "the diet of the badly wounded, especially those with large suppurating wounds, does not get the attention it merits," and ZINTEL [4] suggests that protein deficiency, as indicated by a low level of serum proteins, may be an important cause of the dehiscence of wounds. He rightly points out that the diet as a whole must be considered because both carbohydrate and fat have a protein sparing action. There is, unfortunately, another aspect of the matter. Sepsis, malaise and toxæmia all interfere with appetite,[5] and may render the task of feeding the patient so difficult that a vicious circle establishes itself. It was with the idea of breaking this circle that the intravenous administration of amino-acids was first taken up in America. ELMAN,[6] who began to treat human beings in this way in 1939, has emphasised the importance of relieving hypoproteinæmia whenever it is encountered in a surgical patient. He recommends a free use of plasma transfusion and the introduction of amino-acid mixtures intravenously. Casein hydrolysates have usually been employed for this purpose. The reports on this form of medication have, to say the least, been encouraging, and the coming military operations should provide an opportunity of confirming them.

The vitamins must not be forgotten, for deficiencies of several of them reduce the ability of experimental animals to survive a general infection, and the same may apply to man. We have long known that scurvy delays the healing of fractures, and there is now ample experimental evidence that slighter deficiencies of vitamin C interfere with the normal processes of bone repair,[7] though one cannot hurry the union of fractures by giving an excess of the vitamin. BOURNE'S paper of last week (p. 688) has confirmed previous findings on the influence of vitamin-C deficiency on soft-tissue healing. In 1941 HUNT [8] showed that in guineapigs on a subscurvy diet laparotomy wounds healed by first intention but were puckered and shrunken and would break open 2–3 weeks later. In patients who died a week after laparotomy he demonstrated a close correlation between the histology of the wounds and the amount of vitamin C in the tissues, the wounds which were most deficient in vitamin C showing the poorest production of collagen. CRANDON,[9] it is true, lived for three months on a diet containing no vitamin C and satisfied himself that a wound in his back at the end of that period healed normally, though it did not do so after six months on the diet. The experimental work done in America and by BOURNE in this country suggests that if CRANDON'S wound had been submitted to tests of tensile strength it would not have been thought to have healed normally. BOURNE has confirmed that the tensile strengths of wounds in guineapigs vary with the doses of ascorbic acid given, and that a wound which is histologically normal may still be mechanically weak. In considering dosage, BOURNE points out that weight for weight man needs much less vitamin C than the guineapig, and that it is unnecessary to saturate animals with vitamin C in order to get perfect union. Boston workers [10] suggest, however, that maximal saturation of the tissues with vitamin C may increase their resistance to infection, and infection is of course a potent cause of reduced tensile strength in wounds. We will do well therefore to give wounded men enough vitamin C in one form or another to keep them saturated, and here fortunately we need not wait upon a sick man's appetite. The ideal should be to give them a full mixed diet high in calorie value and in protein and vitamin content, supplementing it to meet special circumstances. Where this is impracticable we must use our best endeavours to see they do not fall short in protein and vitamin C. And the North African campaign taught us [11] that it is worth all the trouble to get proper meals up to the men in the line.

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VACCINATION AGAINST MEASLES

DESPITE early success against smallpox and rabies active immunisation against virus infections has in general been slow and beset with difficulties. Even against influenza and poliomyelitis, on both of which much study has been concentrated, the progress achieved has disappointed early hopes. In the light of these experiences the recent attempts to confer immunity against measles by means of attenuated virus vaccination must be studied critically. Nor should the previous work on measles itself be forgotten. In 1759 HOME[1] claimed to have protected susceptibles against attack by scarifying them with assumedly infective blood taken from patients who had recently had measles, but subsequent workers could not confirm this observation. HERMANN[2] in 1914 instilled filtered nasopharyngeal washings into the anterior nares of babies 3–5 months old in order to raise and perpetuate the passive immunity they are assumed to derive from their mothers, but the method was soon abandoned because unmodified attacks were too frequent and dangerous to be disregarded. HIRARSHI and OKAMOTA[3] in 1921, and later DEBRÉ and his associates,[4] claimed to have induced by the inoculation of various dilutions of blood from measles patients attenuated attacks conferring an immunity sufficient to render the inoculated insusceptible to further injections. Apart from their inherent risk these experiments were necessarily limited in scope and application since fresh blood had to be used for each inoculation. For 20 years the limited success which has attended the use of immune measles serum (convalescent, placental and normal adult) in the prevention and modification of measles has diverted the attention of workers in this field from active prophylactic methods, but in the last 5 years the researches of PLOTZ[5] in France and of STOKES and RAKE[6] in America on the cultivation of measles virus on the chorioallantoic membrane of the developing chick embryo, and their demonstration of attenuation of the virus by repeated egg-passages, first on monkeys and later on susceptible humans, has raised hopes that a practicable method of active immunisation has at last been discovered.

The new antigen has been tried in Philadelphia in collaboration with field workers.[7] Although egg-passage attenuated virus had previously been assayed on monkeys (*Macacus mulatta* is a convenient animal and uniformly susceptible) the conditions of the experiments now recorded were altered so frequently that often there were insufficient numbers in a particular group of trials for the validity of the findings to be assessed. Virus of from 3 to 66 serial passages was used in different experiments, the 26th to 40th passage-virus being most constant in effect. The material was either kept frozen at –35° C. and thawed immediately before inoculation, or was desiccated from the frozen state and reconstituted to its original volume; this procedure did not demonstrably alter activity. Inoculations were given by diverse routes—by intranasal instillation, 1 c.cm. into each nostril; by inhalation, 1 c.cm. atomised directly beneath the nose into a cellophane "shower cap" covering the child's head, making a barely visible fog containing no large droplets; by the subcutaneous route alone or combined with the nasal route; and by intradermal injection, 0·2–1 c.cm. of 1 in 10 to 1 in 10,000 dilutions according to the number of egg passages. Finally, upwards of 27 groups of children comprising the vaccination experiments were subdivided into two groups of presumed susceptibles; (*a*) those who had been under constant medical supervision from birth, and (*b*) those not so well looked after, in whom an attack of measles might have been overlooked or forgotten. Measles of varying severity followed inoculation in 74% of the 255 children inoculated, and if 32 doubtful cases are included the figure rose to 92%. The incubation period was usually shorter (6–7 days) than in natural measles, but occasionally it was prolonged. The observers were impressed by the paucity and mildness of symptoms, especially the almost complete absence of cough, although the rash was sometimes brilliant and the temperature high but transient. As regards efficacy of route, intranasal drip returned only 30% positive "takes," compared with 80% after intradermal injection and 98% with the inhaled spray. Of 35 presumed non-immunes who were regarded as unsuitable for vaccination but were exposed to subjects with an attenuated attack, 16 showed no response, 6 were doubtful and 13 had attacks similar to those in the inoculated—in other words, there was no reversion to unattenuated or normal measles, at least by one human passage.

A report[8] on 22 children observed for a year after successful vaccination shows that, after chance exposure, 15 did not contract measles, 3 had unmodified attacks, 1 had an extremely mild attack and in 3 the disease was so mild as to be identified with difficulty. An illustration of the protection afforded was given by a group of 7 vaccinated children who escaped entirely, in contrast to 25 attacks among 36 unvaccinated but otherwise similar children exposed in the same school. An additional 24 children of the vaccinated group were given challenge injections of blood taken from active cases of measles; in 13 no disease followed, in 3 there was typical measles, in 2 mild attacks and in 5 extremely mild attacks; 6 unvaccinated children given similar challenge injections all developed typical unmodified measles. RAKE[9] reports on two further trials conducted since July, 1943, for the board investigating epidemic diseases in the Army. In Baltimore 827 coloured children assumed to be susceptible from the parents' history were vaccinated; of 412 of these who were carefully followed up, 145, or 35%, showed definite signs of mild measles. The number may have been greater, for a faint rash is readily overlooked in negroes. In Philadelphia 199 white children who had never had measles according to their physicians' records were vaccinated, and 172 followed up; of these, 131, or 76%, gave an equally satisfactory response, the higher percentage being ascribed to the more accurate history.

Summing the vaccinations to date, 1281 children have been inoculated without untoward effect;

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839 of them were carefully investigated revealing that 450 (54%) had definite evidence of modified measles. The absence of a clinical or serological test of immunity is a serious but not crucial handicap in assessing the efficacy of the measure. The sample of 40 proved protected out of 46 at intimate risk is impressive but not conclusive, since natural immunity remains a possibility; an extended trial under exacting conditions should certainly be made, especially as the method has the virtue of being innocuous.

TRIPLE RHYTHM

WORK done at Sir JAMES MACKENZIE'S old department at the London Hospital goes far to explain the significance of triple heart rhythm—"the cadence produced when three sounds recur in successive cardiac cycles," as EVANS defines it in his Strickland Goodall lecture.[1] He has studied by phonocardiography the heart sounds in 270 patients over the age of 9 years who were either known to have heart disease or were sent to his department for an opinion on their heart, and were found on auscultation to have triple rhythm. No phonocardiogram was taken unless triple rhythm was first detected by the stethoscope, and his survey does not deal with splitting of the first sound at the apex or of the second at the base of the heart. He now suggests that terms like "gallop rhythm" should be discarded, and that we should speak of three types of triple rhythm. In type 1 the added sound is found early in diastole, immediately after the second sound (*lub dupty*—); it is the third sound of the normal cardiac cycle. In type 2 the extra sound comes late in diastole (*tylub dup*—) and corresponds to the fourth sound of the cardiac cycle. In type 3 it comes towards the end of systole, just before the second heart sound (*lub tydup*—). Types 1 and 2 are each divided into two subgroups.

There were 205 patients with triple rhythm type 1, of whom 125 seemed healthy (1*a*) and 80 had evidence of some form of heart disease (1*b*). The healthy ones were mostly young people, none being over 40, and it may be recalled that MANNHEIMER[2] found a third heart sound by phonocardiography in 70% of healthy children. These patients' extra sound was best heard midway between the nipple line and the lateral border of the sternum, and was accentuated when the pulse was quickened or the patient lay down. In agreement with BRAMWELL'S observation,[3] cardioscopy showed a prominent pulmonary artery in most of these patients—47 out of 50 consecutive patients showed such a prominence, compared with 7 out of 50 controls of the same age-group with dual rhythm. In type 1*b* the extra sound was best heard in the mitral area or external to it, and it could usually be heard with the patient sitting up as well as lying down. It occurred in older patients than type 1*a* and was associated with lesions that produce enlargement and failure of the right side of the heart, such as mitral stenosis, hypertension, thyrotoxicosis, congenital heart disease, emphysema and pulmonary hypertension. In mitral stenosis the triple rhythm was commoner with auricular fibrillation than with sinus rhythm, and its presence pointed to considerable enlargement of the right side of the heart. In hypertension this type of rhythm means right heart-failure, and since this comes late in the course of hypertensive failure it is a significant finding. It was found to be a useful clinical guide to the presence of right-sided enlargement in thyrotoxicosis and congenital heart disease as well as in emphysema, in which it carried a grim prognosis, 4 out of 5 patients dying within five months of its detection.

Type 2 is similarly subdivided into two subgroups, *a* being often of little significance and *b* a serious omen. Of the 60 patients with type 2 rhythm 14 showed type 2*a*, where the extra sound is produced by auricular systole when there is delay in auriculo-ventricular conduction. In these cases the triple rhythm is best heard slightly inside the mitral area with the patient lying down, but it can also be heard in the erect position. After full examination 6 of the 14 patients were passed as healthy. Not all patients with sufficient auriculo-ventricular delay to prolong the P-R interval beyond the normal 0·2 sec. will show triple rhythm, but nearly all young people will do so. Type 2*b* is the classical *bruit de galop* of older writers, and is always associated with left ventricular failure. Of EVANS'S 46 patients with this type of triple rhythm, 41 had hypertension and 5 aortic incompetence, the low proportion of cases of aortic incompetence agreeing with GARVIN'S experience.[4] Here the sound is probably produced by the shock of the auricular blood wave on a hypotonic ventricle. This type of rhythm therefore means left ventricular failure with a normally contracting auricle. The added sound is heard best along a line running from the displaced apex beat to the left border of the xiphisternum, and is often accentuated by a rapid heart-rate; it is loudest with the patient lying down, but can be heard in the erect position. It can most easily be detected by placing the ear direct on the chest, when the sound is well heard and the characteristic dual impulse can be felt. In type 3 triple rhythm a dull and muffled or sometimes clicking sound is heard immediately before the second heart sound. EVANS found it in only 5 of his patients, and in none of them was there any evidence of heart disease.

This small but important field of clinical medicine had become the battlefield of the experts, whose disputations gave the clinician little help in assessing the significance of the extra sounds he hears occasionally in the heart. EVANS'S study will encourage us to detect and help us to explain the triple rhythms, and it should reduce the number of people who, apparently the picture of health, are told as youngsters that there is "something wrong with their heart."

1. Evans, W. *Brit. Heart J.* 1943, **5**, 205.
2. Mannheimer, E. *Acta pædiatr., Stockh.* 1940, **28**, suppl. 2 (see *Lancet*, 1941, i, 607).
3. Bramwell, C. *Brit. Heart J.* 1943, **5**, 24 (see *Lancet*, 1943, ii, 279).
4. Garvin, C. F. *Amer. J. med. Sci.* 1943, **205**, 814 (see *Lancet*, 1943, ii, 199).

PHARMACEUTICAL POCKET BOOK.—We cannot pretend to assess the value of this book (Pharmaceutical Press. 10*s.*) to the pharmacist except to remark that it is now in its 14th edition. We are entitled to regard it as a guide to the kind of help the practitioner may expect to get from his friend in the chemist's shop, and there are many things in the attractive little volume of 400 pages which the practitioner who has not got them at his fingers' ends will be heartily glad to know that someone has. Few doctors, for example, know their poisons rules, let alone the laws relating to patents and trade-marks, and the prescriber must leave it to the pharmacist to ensure that the liquor arsenicalis he orders really does contain gr. 87½ to the pint.

Annotations

PLASMA IN PLENTY

TECHNICAL advances, greater knowledge and generous facilities have combined to increase the demands for blood and blood substitutes. A modern general hospital of 1000 beds can be expected to use anything up to 1000 pints of blood and plasma in a year for medical ailments, maternity work and accident cases. This will need a service collecting between 2000 and 3000 pints of blood in a year, if the stable blood substitutes—plasma or perhaps albumin—are to be available for accidents and emergencies. So far, the only source of plasma has been the ordinary blood donor, who, on conservative grounds, is not bled more often than once in three months, and in whom blood regeneration has to be considered or even assisted. No-one anticipates that the war panel of patriotic donors can be maintained at its present numbers indefinitely, so any device for lightening their load or transferring it to another source can be counted an advantage. There has always been an Anglo-Saxon prejudice against the use of cadaver blood—a prejudice which the Russians dismissed, though later they found themselves in technical difficulties when using blood itself. Yet Erf [1] has shown that there are no technical difficulties in the preparation of dried plasma from this source, and that the product is the equal of that supplied by the living. Human albumin, which war may show to be as good as plasma, can be obtained in the same way, and here there is no objection to removing as much as can be collected. More attractive perhaps is the technique described by Co Tui, Bartter, Wright and Holt,[2] who advocate the bleeding of donors for plasma alone. After separation of the plasma, the red cells are reinfused. Working under these conditions donors can give as many as four donations in a week or one donation every week for twelve weeks without any effect on their plasma protein, hæmatocrit, bilirubin level or fragility test. Such methods may have to be applied to keep up the supply until plasma or albumin of animal origin has been rendered safe for human use.

DIABETES AND INJURY

THERE are some 860,000 diabetics in the United States; as the incidence in Britain is probably very similar the association of trauma and diabetes mellitus must be fairly common, and the question of a causal relationship naturally arises. Bishop [3] points out that for trauma to act as the direct cause of diabetes it must result in the destruction of three-quarters to nine-tenths of the pancreas. In other words, trauma as a direct cause of diabetes mellitus is almost impossible, since such a degree of destruction would almost certainly prove fatal. A few non-fatal cases have been reported, but in none of them was there absolute evidence of the absence of diabetes before the accident. Trauma may of course lead to the discovery of unrecognised diabetes, and it may aggravate existing diabetes. In a known diabetic the enforced rest after the accident may so upset the equilibrium established by treatment that the disease becomes uncontrolled, and in a person predisposed to diabetes trauma might precipitate the disease by suddenly interfering with carbohydrate metabolism through the reduction of muscular activity. In none of these cases, however, does the injury actually cause the disease. Another way in which trauma might be associated with the onset of diabetes is indirectly by introducing infection. Here again there is no evidence that infection can cause diabetes mellitus in a previously normal person, but it may be the aggravating factor responsible for latent disease becoming manifest. It must be borne in mind that glycosuria is not synonymous with diabetes mellitus, a point which is liable to be overlooked when glycosuria is found after an accident, particularly a head injury. Thomsen,[4] for instance, found a raised fasting blood-sugar in 34 out of 144 cases of injury, and in a majority of the 144 cases glycosuria was also found shortly after the accident, though it had disappeared within a week. He followed 49 cases for periods up to three years after the accident, and in none could he find any evidence of diabetes.

1. Erf, L. A. *Amer. J. med. Sci.* 1944, **207**, 314.
2. Tui, C., Bartter, F. C., Wright, A. M. and Holt, R. B. *J. Amer. med. Ass.* 1944, **124**, 331.
3. Bishop, W. A. *J. indust. Hyg.* 1944, **26**, 55.

DECLINE OF RESPIRATORY INFECTIONS

AMERICAN workers in the field of preventive medicine have given us in recent years a choice selection of philosophical essays and books based either on original work, as in the *Collected Papers* of W. H. Frost, or on the broad lessons of history as in Geddes Smith's *Plague on us*. Infused with both the reflective and speculative moods, they betoken the thinking man with time to think and to express his thoughts. In a recent collection of stimulating and unorthodox essays on respiratory infections,[5] Professor O'Hara's main concern is that we should try now to evaluate the events that may have contributed to the steady downward trend in the mortality-rates of the common respiratory diseases during the past few decades. As he points out, in a foreword that might well be quoted in full, "although we have developed many practices aimed at the control of inhaled infections, the fact that our major mortality reductions have preceded rather than followed the use of these stratagems is worthy of particular notice and comment." Much of the improvement in respiratory infections in the present century must be credited to the sanitary engineer, as was the case with intestinal infections in the nineteenth century. Chadwick, we may recall, looked forward to the time when sanitary reforms would eliminate the need for doctors. However, sanitation per se is not enough and cannot be given all the credit. The bacteriologist has contributed his share by devising means for increasing the host's resistance specifically to certain diseases—e.g., diphtheria and smallpox. If his field has been limited in the past, those perennial virus infections, the common cold, influenza and measles, offer scope for his ingenuity in the future. The part which the hygienist has played in lessening the toll of respiratory infection is less easy to define. Would, for example, our bill of health be very different today if we had not "enjoyed" such recent amenities as child welfare and antenatal clinics, tuberculosis dispensaries, and school medical inspection? O'Hara shows for Massachusetts what Lissant Cox showed for Lancashire, that the decline in deaths from tuberculosis, with its clinics and sanatoria, is closely paralleled by a fall in the mortality from pneumonia for which no such reforms were made. But the hygienist's day is perhaps at hand, and better modes of living and eating, together with the banishment of ignorance and dirt, should help materially in maintaining and raising resistance to infection, and we may look forward to the day when measles is no more hazardous for the poor than for the rich child. Other human frailties have to be countered. Smallpox provides the object-lesson of a community which gladly welcomed a means for its prevention when it was ravaging youth and beauty, but which quickly became apathetic when the danger had gone. So it may be for diphtheria. O'Hara has many provocative and wise things to say about the common cold (he postulates atypical measles in this guise); about pneumonia, which he regards as a combined virus and bacterial infection; about rheumatic fever and

4. Thomsen, V. *Acta med. scand.* 1938, suppl. 91, p. 1.
5. Air-Borne Infection: some observations on its decline. By Dwight O'Hara, MD, professor of preventive medicine, Tufts College, Boston, Mass. (Oxford University Press. Pp. 114. 8s. 6d.)

its relation to streptococcal infection; and about the methods of tuberculosis control which he likens to the weeding of a garden. At a time when the hazards of air-borne infection are receiving the concentrated attention of scientists he ends on an optimistic if cautionary note, that the respiratory bacteria and viruses are losing ground or are prepared to make a compromise peace in their struggle for existence vis-à-vis their human host.

BACTERIOPHAGE IN BACILLARY DYSENTERY

REPORTING on their field trials of bacteriophage in bacillary dysentery, Colonel Boyd and Major Portnoy [1] conclude that specific bacteriophage, given as is the custom by mouth, fails to protect, is incapable of aborting the infection, and has no dramatic effect, if indeed it has any action at all, in modifying the severity and duration of an attack. The basis for this comprehensive condemnation is the observations they made in prisoner-of-war "cages" in the Middle East. According to the statements of captured medical officers, bacteriophage was the standard remedy for bacillary dysentery in the German forward troops in Africa. Large quantities of Ruhr-Bakteriophagen (polyvalent, Behringwerke Bayer) were left behind in the Axis retreat from El Alamein, and test-tube trials with this material showed that all the strains of dysentery bacilli isolated locally were susceptible to its action—most of them highly susceptible. It was also found that after ingestion the bacteriophage could be readily recovered from the stools in an active condition and in considerable quantity. In other words there was no reason to doubt the specific potency of the preparation or its ability to reach the seat of the disease.

Boyd and Portnoy decided to test its efficiency in controlling bacillary dysentery by using it prophylactically and therapeutically in half the community of German prisoners-of-war, keeping the other half as a standard of comparison. In the cage chosen for prophylaxis there were about 700 prisoners, and there had been 19 dysentery admissions to hospital in the previous four weeks (a rate of 27 per 1000). In the control cages, with some 2100 inmates, the dysentery admissions had numbered 24 (a rate of 11 per 1000). Every man in the bacteriophage cage swallowed 10 c.cm. of bacteriophage before breakfast on three successive mornings. In the subsequent four weeks the control cages showed little change, for there were still 23 cases (or 10 per 1000). At the same time there was no definite evidence of benefit to the members of the treated group, which had 15 cases (a rate of 20 per 1000). It is clear that the two groups were hardly comparable before the prophylactic doses were given—the treated group were experiencing an appreciably higher rate of dysentery. After treatment their rate fell somewhat, while that in the control group remained relatively unchanged. Whether the treatment played *any* part in this fall can hardly be said; but we may certainly conclude that it had no dramatic effect, since before treatment the experimental cage had a dysentery rate 2½ times as high as the control cages and after treatment its incidence was still twice as high.

For the therapeutic test the cages were divided at random into a "treatment" group of about 4100 men and a control group of about 4600. All cases of diarrhœa in the treatment group received bacteriophage as soon as they reported, while cases of diarrhœa in the control group did not. Over a period of 61 days 8·5% of the treatment group reported with diarrhœa, compared with 6·2% of the controls; but the difference is probably explained by the medical officers in the treatment camps being on the lookout for diarrhœa so that they could begin bacteriophage therapy at once. Immediate administration of phage does not seem, however, to have had much influence on the incidence of clinical dysentery. Admissions to hospital with this diagnosis numbered 136 (2·96% of those at risk) in the control group, and 126 (3·10%) in the treated group. While this comparison seems to be the best measure of the failure of the treatment, it might be argued that of the 347 treated cases of diarrhœa 36% had to be admitted to hospital as clinical dysentery, compared with the 48% of the 283 control cases. This would suggest some advantage to the bacteriophage group, but the evidence is admissible only if symptoms of diarrhœa were being sought with equal care in the two groups. This the authors doubt—a defect of some importance but possibly unavoidable.

Analysing the particulars of the cases admitted to hospital they find that the average number of days before blood and mucus disappeared from the stools was 9·03 in the control group and 9·08 in the treated, while the average stay in hospital was nearly 20 days for the former and nearly 17 days for the latter: 84% of the treated and 75% of the controls were assessed as mild on admission. The bacteriophage treatment, therefore, did not appreciably modify the severity or duration of the attack. Dysentery bacilli were isolated from the fæces as often in the treated group as in the controls, and could be recovered from the stools after the bowel had been exposed for as long as 4 days to the action of bacteriophage. In general, therefore, it is hard to glean from this careful and extensive trial anything more encouraging to bacteriophage than Boyd and Portnoy's pessimistic conclusion that it failed to exercise in the intestine the potent bactericidal properties it exhibited in the test-tube.

1. Boyd, J. S. K., and Portnoy, B. *Trans. Roy. Soc. trop. Med. and Hyg.* 1944, 37, 243.

THE TECHNIQUE OF SOCIAL SURVEY

THE work of the Wartime Social Survey during the past three years was described in a paper read to the Royal Statistical Society by K. Box and G. Thomas on May 16. It is clear that the method of social survey can be applied to a wide variety of departmental problems, though it is equally clear that its limitations have yet to be fully explored. The work falls under three main headings: (1) sampling, (2) interviewing and the recording of data; and (3) analysis and interpretation of results. Great care seems to have been taken over the devising of sampling techniques, which now represent a compromise between theoretical perfection and practicability. If a random sample of names is drawn from the Ministry of Food's lists, the amount of travel which investigators have to undertake to track down the sample is very great; and unless substitutes are chosen, calling back will often be necessary because of absence from home. Nevertheless this has been done on a number of occasions—for example, in certain health and nutrition investigations. More usually a stratified sample is used, the stratifications being determined by the group under investigation. Within the stratifications random sampling is employed. The analysis of material has been greatly simplified by the use of machinery and punched cards. But interpretation still is not easy.

The ultimate success of all social-survey work depends on the correctness of the data recorded at interview; and it is here that the difficulties are greatest. Sometimes objective observation is possible—for example, in the study of domestic lighting and heating—but often subjective material has to be dealt with. Deliberate falsification is probably much less important than errors due to faulty memory, social inhibitions, or other emotional factors. Even apparently simple factual questions—such as "Have you seen the Government's VD advertisements?"—may not reveal the truth; for some may say "Yes" to impress the investigator, while others reply "No," from false or natural modesty. A more difficult question: "Do you know what the venereal diseases are?" was actually answered by

97% of persons interviewed, which in itself is a tribute to the tact of the Survey's investigators; 69% replied "Yes," 17% gave vague or doubtful replies, while 11% said "No." It is the analysis of the 69% which presents a difficulty: 8% said they "knew all about venereal diseases"—which, if it means anything, is an expression of confident belief rather than fact. More to the point were the 29% who named syphilis and gonorrhœa as such, or colloquially.

The use of check questions, the answer to which is already known, is a valuable method of checking the validity of the sample. But it is no check on the accuracy of the other answers. Clearly, what is needed now is a detailed study of the limits of variability of answers in individual interviews. In such a task the coöperation of an experienced clinician, versed in the snags of history taking, might be of value.

SECONDARY PELLAGRA

UNTIL some ten years ago it was still customary to speak of endemic, sporadic, alcoholic and secondary pellagra, pellagra of the insane, and so on. Parapellagra and pellagroid were terms still used to denote cases which did not fit into the maize theory, even though maize consumption as an essential ætiological factor had been disproved many years before. In 1933 Spies and De Wolff demonstrated the identity of endemic and alcoholic pellagra in the United States, and in 1937 Stannus urged the basic unity of all forms of the disease, whatever the circumstances. Eusterman and O'Leary in 1931 had published a series of cases of pellagra associated with organic lesions of the gastro-intestinal tract; and in 1937 Stannus cited nearly 70 recorded examples. Recently Bean, Spies and Blankenhorn [1] have brought the subject of secondary pellagra up to date. They have combed the writings of others for cases and have added their own observations on 388 pellagrins—146 from a non-endemic area (Ohio) and 242 from an endemic area (Alabama)—among whom some second ætiological factor was suspected. Since "the exact pathogenesis of pellagra is not established," to quote their own words, it is questionable whether their running commentary, based on "a tentative outline of mechanisms" which may be in operation, serves much purpose. In regard to nicotinic acid for example and its relation to pellagra, even though we may never be able to follow a "tagged" molecule of the substance throughout its journey in the body, future research will doubtless reveal many of the mechanisms involved and the causes of their failure. Meanwhile speculations on such matters as failure of absorption, phosphorylation, elaboration, transport and storage and diversion along abnormal channels by infections and neoplasms, though of value in suggesting the paths along which research may proceed, must not be accepted as proved truths. Would it not be better at once to discard all qualifying expressions in regard to pellagra? "In the endemic class," say the American workers, "we arbitrarily include patients whose diet is inadequate for any reason, because of poverty, food fads or ill-conceived therapeutic diets." "Secondary pellagra occurs when some disease interferes with the orderly processes of nutrition in various ways." "To establish an unassailable case for a given instance of secondary pellagra one should be able to demonstrate that: (1) the patient ingested a diet adequate for his ordinary needs, or at least not permitting a recognisable deficiency; (2) some extraneous condition occurred which was followed by the development of pellagra while the same diet was consumed; and (3) when the underlying condition was corrected pellagra disappeared." According to this definition of secondary pellagra all cases of subclinical pellagra in which the attack is precipitated by some minor incident are included, which is only calculated to obscure the issue. Growth, gestation, lactation and muscular work may similarly precipitate the onset of symptoms in many deficiency states, but since they are normal physiological events the cases can hardly be considered as secondary to them. Comparison between the cases in the endemic and non-endemic areas brings out one interesting point—"secondary pellagra thus reflects the mosaic of the prevalent diseases upon which it is engrafted." No similar correlation occurs however in this country, which goes to show that the main factor involved in the production of so-called secondary pellagra is malnutrition among large sections of the inhabitants, such as is unknown in Britain. Few people in this country perhaps realise the magnitude of the problem in America with its "poor white" and coloured populations. Professor Sydenstricker, after having surveyed some of our most indigent communities, remarked that deficiency disease appeared to be almost non-existent in Great Britain as compared with the United States.

1. Bean, W. B., Spies, T. D., Blankenhorn, M. A. *Medicine*, 1944, **23**, 1.

DANGEROUS DRUGS IN LIBERATED COUNTRIES

THE permanent Central Opium Board of the League of Nations has recently held its 43rd session in London, with Sir Atul Chatterjee presiding. Attention is at present chiefly concerned with the steps to be taken to re-establish the international control of traffic in narcotics in states occupied by the Axis as these regain independence and autonomy. There will be three stages in this process of emancipation, first during the period of military control, then jointly under allied occupation coupled with returning national administration, and lastly under restored national autonomy. Regulations are suggested by the Board appropriate to the stage of transition, dealing with stocks in civilian hands, imports, exports and administration of commerce in opium, poppy straw, morphine, heroin, coca leaves, crude cocaine and Indian hemp in accordance with the provisions of the International Conventions of 1912, 1925 and 1931. The Central Opium Board and the supervisory body under the 1931 convention, dealing with the limitation of manufacture, will be ready to give advice and assistance in reorganising the national and international machinery dislocated during the years of war. The problem which is the prerequisite of all the conventions—the limitation of production of the raw materials of narcotic drugs—will have to be resumed. The world annual requirements for legitimate use have been estimated as: raw opium 300 tons, morphine 9 tons, heroin 2 tons, and cocaine 5½ tons. The actual production has been appallingly in excess of these figures, illicit traffic has been checked but not scotched, and the peril of addiction, which spread after the close of the last great war, will demand unceasing vigilance on the part of all concerned.

A DISORDER OF THE BODY POLITIC

UNEMPLOYMENT, like so many human diseases in the stricter sense, can no longer be labelled idiopathic. The white-paper describes a syndrome of which some at least of the contributory causes are recognised and can be modified or removed. The dole which alleviated its worst symptoms has proved a veritable drug of addiction, and a bold move is now to be made in the planning of preventive measures. Some of these measures have never been tried before anywhere and will entail large-scale interference with economic liberty—rationing of goods, restriction on purchases, compulsory saving—comparable to those public-health impositions which have banished scurvy and typhus from our midst, and are well on the way to preventing rickets and diphtheria. It is heartening to see a social disorder being dealt with on the orderly lines with which medical science has made us familiar—ætiology, pathogenesis, prophylaxis, and the rest. The white-paper has already been hailed by economists as the end of economic defeatism. It certainly looks like a contribution to the comprehensive health service.

DR. WILBUR A. SAWYER, of the Rockefeller Foundation, has been appointed director of the health division of UNRRA.

Special Articles

REHABILITATION

AT AN EMS HOSPITAL

R. G. HENDERSON, MD ABERD, D P H

SURGEON CAPTAIN RNVR; MEDICAL SUPERINTENDENT

REHABILITATION measures in hospital are not new; they were introduced in the last war and extensively used then—by orthopædic surgeons principally—as a means of restoring the function of a damaged limb. Yet in the last twenty years the profession has made little effort to develop any scheme of planned rehabilitation for hospital patients.

In the past it has been the policy of almost every general hospital in the country to get its patients discharged as soon as possible; and it has taken another war to make us realise that we are failing in our responsibility if we prematurely discharge a patient from hospital to his bed at home, or throw him on his own resources for a protracted convalescence. Our duty to the patient is not ended until he is fit again or restored as completely as possible to working efficiency.

The term "rehabilitation" covers all measures necessary to restore a patient to full health, including the surgical operation, medical care, nursing, physiotherapy, convalescence, social welfare, &c. In the prewar hospital each department was run as a separate unit, and there was little continuity of treatment and convalescent aftercare. Medical rehabilitation, properly understood, is the coördination of the existing hospital services with other recognised ancillary services developed to form a complete scheme for continuity of treatment throughout the various stages of illness and convalescence.

Every hospital must consider, in the light of its particular problems, the kind of scheme which can best meet its own needs. It is, of course, easy to rehabilitate a single case throughout illness and convalescence, and, for that matter, not difficult to rehabilitate groups of similar cases; but that is not enough. There ought to be in hospital a rehabilitation scheme which can be applied, not only to a selected few but to all medical and surgical patients.

EQUIPMENT

In this hospital of over 1500 beds there is a naval unit, a military section and a civilian section, the largest number of beds being occupied by naval patients. A considerable proportion of the civilian patients are either elderly or children, and are not in great need of rehabilitation; while military patients are automatically Y-listed after 21 days in hospital and pass through a convalescent depôt before returning to duty. The naval authorities have no convalescent depots for hardening purposes; most of our patients being sailors, our rehabilitation scheme has been devised principally to deal with them, but all Service patients and all suitable civilians take part in it. The average stay in hospital of men in the naval unit was 45·5 days during the four months January–April, 1944; and 32% of patients in this unit were discharged direct to duty and not recommended for sick leave.

Most of the rehabilitation activities have been practised in this hospital for three years. They are carried out by separate departments, working in close coöperation and dovetailing as far as possible so that there is continuity of treatment. They are as follows:—

Physiotherapy Department.—Staff: one visiting medical physiotherapeutist and 6 masseuses.

There are two physiotherapy departments, one dealing principally with the Service patients and the other with the civilian patients. Both have a number of cubicles for individual treatments and a small gymnasium for individual or small class exercises. The departments have an ample supply of electrical and other equipment, including short and long-wave diathermy apparatus, baths, &c. The total number of physiotherapy treatments given in the hospital during 1943 was 58,633.

Occupational Therapy Department.—Staff: 4 whole-time handicraft instructresses.

The handicraft department is open to all up-patients daily from 9 AM to 5 PM. In the Service sections, however, most of this work is confined to bed-patients. Up-patients engage in more active remedial activities. Handicrafts include rug-making, weaving, basketry, raffia work, book-binding, feltwork, needlework, knitting and toy-making. The number of patients working on handicrafts at any time is approximately 500. Finished articles may be bought by the patient at the cost price of the materials. The number of articles completed in this department in 1943 was 8867.

Library.—Staff: 3 whole-time librarians.

There are two libraries, one for Service and one for civilian patients. Catalogued books number 8617, and the circulation during 1943 was 50,919, or an average of 4243 per month.

Physical Training Department.—Staff: 5 physical-training instructors, trained in remedial work.

There is a large gymnasium for remedial exercises and PT. Indoor and outdoor games equipment is provided for football, basket-ball, hockey, tenniquoits, light games, gardening and woodcutting. An outdoor swimming-pool is now being completed. About 300 patients, graded in groups according to fitness, attend this department daily for 6 days a week.

Education and Social Department.—Staff: one whole-time naval schoolmaster, one visiting Army education officer and visiting lecturers.

There is a classroom and a large hall. In addition there is a small recreation room in each ward block. The classroom contains 70 reproductions of famous pictures, representing different schools of art. Lectures on art and art appreciation are given by professional lecturers. A radiogram and records of classical and modern music are also provided, and gramophone recitals and lectures on music appreciation are given. Other activities are play-reading, production of plays, concerts, discussions, lectures, "brains trusts," together with courses in general education and languages, commercial and technical subjects, drawing, sketching, town-planning, poster work, map-reading, &c. Individual educational activities for bed-patients include vocational correspondence and postal study courses, courses arranged by the College of the Sea, individual instruction or study, and directed reading advice (in conjunction with the library service).

Welfare.—Welfare work in connexion with personal and domestic matters is dealt with by the almoners and the Service welfare officers.

Canteen and Recreational Hall.—The hospital patients have a large canteen and recreation hall. This department, although it can hardly be considered part of the rehabilitation scheme, cannot be entirely left out. Recreations are provided for the patients and the considerable profits which accrue are used for the general benefit of the recreational and rehabilitation activities. There is a shop for the sale of cigarettes and tobacco (at pre-Budget prices to Service patients), newspapers and periodicals, and sweets. Teas are served to patients and visitors. Billiards, table-tennis, darts, chess, draughts and card games are provided free of charge; and on wet afternoons indoor games and competitions are held in the hall for the rehabilitation groups when they are unable to play outdoor games. The staff of this canteen consists of a manager and two assistants, but all group activities held in the canteen hall are supervised by the rehabilitation staff.

THE REHABILITATION SCHEME

The scheme begins with the bed-patient. In addition to medical, surgical and nursing treatment, including prescribed physiotherapy, bed-patients, as soon as they are fit, are given breathing exercises and bed exercises by the remedial staff who make daily visits to each ward. Handicrafts are prescribed as soon as possible, and the instructresses regularly visit the wards to supervise crafts in progress and to start new patients on some work. The librarians also regularly visit the wards and see all patients. A well-run hospital library service is important in a general scheme of rehabilitation, and a trained hospital librarian, working under instruction, can do much to assist recovery. Her work is both remedial and educational. Medical and surgical staff soon appreciate the advantage of this service, and it is

interesting to note how often they prescribe the librarian. It is proposed to use the hospital as a training centre for hospital librarians, and a syllabus for their training has been prepared here at the request of the War Organisation of the British Red Cross and Order of St. John (hospital library department).

While the patient is still in bed the educational staff or the welfare officers may be asked to see him, and one department will refer the patient to another for appropriate attention. In this way the physical-remedial staff, the handicraft staff, the librarians, the education and welfare officers are all brought in touch with the bed-patients, and contact with them is kept up, if necessary, during the whole of their stay in hospital.

The scheme, however, is directed to deal in the main with Service up-patients. With the exception of men who are to be discharged on medical grounds, all Service up-patients have graduated exercises, PT, games and other remedial activities, and all those who are fit to be out in the grounds are classified by the medical officers into 4 groups according to their fitness, as follows :—

GROUP D.—Men not fit for physical exercises, games or walking, but fit to go to the education department for lectures, discussions or recitals. Fit to be put on galley-duty. Afternoon passes not granted.

Time-table.—Morning : nil. Afternoon : on Mondays, Tuesdays, Thursdays and Fridays, muster for afternoon lectures, &c. (1.45–3 PM).

GROUP C.—Men fit for short walks (1 mile), remedial exercises, indoor games. On galley-duty. Afternoon passes may be granted on Saturdays and Sundays.

Time-table.—Morning : report at gymnasium daily, Monday to Saturday inclusive (10.30–11.15 AM.). Afternoon : on Mondays, Tuesdays, Thursdays and Fridays muster for afternoon activities (1.45–3.30 PM).

GROUP B.—Men fit for short walks (2 miles), class exercises and light PT, games and gardening. On galley-duty. Afternoon passes may be granted on Wednesdays, Saturdays and Sundays, and week-end leave one in three.

Time-table.—Morning : report at gymnasium daily, Monday to Saturday inclusive, for PT (9.30–10.15 AM). Afternoon : on Mondays, Tuesdays, Thursdays and Fridays muster for afternoon activities (1.45–3.45 PM).

GROUP A.—Men nearly fit for discharge ; fit for long walks (4 miles), for general PT, outdoor games and gardening. Not on galley-duty. May be granted afternoon passes on Wednesdays, Saturdays and Sundays, or week-end leave.

Time-table.—Morning : report at gymnasium daily, Monday to Saturday inclusive, for PT (8.30–9.15 AM). Afternoon : on Mondays, Tuesdays, Thursdays and Fridays muster for afternoon activities (1.45–3.45 PM).

Wednesday and Sunday afternoons are the hospital visiting days. An ENSA concert is provided every alternate Saturday afternoon and a film show on the intervening Saturdays.

Patients are reviewed for the purpose of classification under this scheme at least once a week by the ward medical officers. The lists are submitted to the Service section office concerned, which keeps the registers and ensures maximum class attendances. Up-grading is done weekly, or as often as is necessary, by the medical officer. The scheme is so devised that more privileges are granted to the higher grades so that there is an inducement for the patient himself to get up-graded. For instance leave is not granted to group D ; afternoon leave on Saturdays and Sundays may be given to group C ; afternoon leave on Wednesdays, Saturdays and Sundays, and occasional week-ends, may be given to groups A and B, and group-A patients are exempted from " galley duties." A class register is kept for each group and a roll-call taken at each attendance.

About 300 up-patients attend daily for planned remedial activities, of whom approximately 50 are in group A, 125 in group B, 75 in group C and 50 in group D.

In a hospital rehabilitation scheme such as this, it is of the utmost importance to have the coöperation of the medical and nursing staff. Unless they are fully sensible of the remedial qualities of the scheme and familiar with all its branches, the scheme is not likely to be very successful. Hence it is necessary to have periodical meetings of the medical staff, the ward sisters and the nurses in charge of wards, in order to explain the scheme and its purpose, to discuss the various difficulties that may arise in fitting in the rehabilitation activities with other hospital routine and, above all, to get them to appreciate that the scheme is fundamentally a remedial one and that they themselves have to play an important part in its execution.

SUMMARY

A rehabilitation scheme is described which applies to all patients in a large general hospital. Most of them are naval patients and part of the scheme is specially devised for them, but it generally applies to all the patients in the hospital—naval, military and civilian.

Physiotherapy, occupational therapy, education and social amenities, library facilities and physical remedial activities form part of the scheme. It is maintained that, in addition to the accepted remedial services, an educational and social department and a library run by whole-time trained hospital librarians are important branches of a general rehabilitation scheme. Physical and mental rehabilitation of the general hospital patient is considered equally important and interdependent.

Bed-patients have individual attention from each of the various rehabilitation services, and are given breathing exercises and bed exercises. A routine physical and mental rehabilitation programme is provided for Service up-patients. Civilian male patients of the same age-group are also included.

Up-patients are graded according to their degree of fitness into four groups, and are gradually given more and more active physical exercises as they improve, until by the time they are ready for discharge they are taking part in strenuous outdoor games. As many as possible of the patients are discharged to duty without being given sick leave.

I am indebted to the Medical Officer of Health, London County Council, and the Group Officer, Sector 10, Ministry of Health, for their support in developing the scheme and for providing accommodation, equipment and personnel ; to the naval and military authorities for providing staff and equipment in connexion with the education, physical training and occupational therapy departments ; to the British Red Cross Organisation for their help in developing the library service, and to the Education Officer, London County Council, for the pictures for the education department. Finally, my thanks are due to the staff of the hospital for their coöperation in ensuring the success of the scheme.

THE MALE NURSE NOW AND IN FUTURE

MEN who take up nursing are in the unusual position of striving for equal recognition with their women colleagues. In most general hospitals they have not been accepted as a normal part of the staff, and even when employed are seldom appointed to the higher posts. As a result, some become discouraged by their prospects and leave the profession for other types of work ; we have heard lately of two state-registered male nurses, holding additional higher qualifications, who have taken the posts of master and assistant master in public-assistance institutions.

Male nurses entering the Services meet special anomalies. In the Army women members of the QAIMNS hold commissioned rank, in the Women's Forces, though their pay bears little comparison with that of male commissioned officers in the Army. State-registered male nurses cannot now join the QAIMNS. They can join the RAMC and be promoted to the rank of nursing orderly, class 1, without going through the various intermediate grades. As nurses they are not eligible for commissions and therefore cannot hold any of the more responsible nursing appointments open to women nurses.

A state-registered male nurse who enters the Navy may also have restricted opportunities. He is not always given the status or duties which his training and experience may reasonably deserve. Thus a gold medallist who held both general and mental state certificates and additional qualifications, and who had nursed every type of civilian case for twelve years, has been employed only in polishing floors, cleaning windows and moving crates of stores ; and his case is not unique.

Both the Navy and the RAF offer their own training for the " trade " of nurse. A man who takes the Naval

course sits an examination at the end of a year for the rating of sick-berth attendant; later he passes written and practical examinations for the ratings of leading sick-berth attendant and sick-berth petty officer. The rating of petty officer is equivalent to the rank of sergeant in the Army. Those who achieve the rank of petty officer can take further examinations in hospital administration to qualify as sick-berth chief petty officer, warrant officer, commissioned warrant officer, and ward-master lieutenant. Thus in theory any man entering as a sick-berth probationer could obtain commissioned rank; but in practice such rank is reserved for medical men.

Naval surgeons regard the rank of leading sick-berth attendant as a qualification equivalent to state registration, but the General Nursing Council is not in a position to put men who hold it on the register, for they have not taken the examination prescribed by law. It would probably be more satisfactory if sick-berth attendants took the state examinations in the course of their training, and if state-registered nurses on admission to the sick-berth service could be given rank appropriate to their qualifications.

In the RAF, in peace-time, a medical orderly took 41 weeks' training before remustering to the trade of nursing orderly; after a further six months' training he became a leading aircraftsman. Three years after entering training, provided he had had at least six months' ward experience, he could sit for the RAF examination for the trade of trained nurse. If he passed, he was at liberty to sit for the state examination if he wished. Since war began it has not been possible to give training within the Service. Nurses, whether Service-trained or state-registered, have the minimum rank of corporal and are eligible for promotion to the ranks of sergeant and flight-sergeant. If promoted beyond that rank it is generally to undertake administrative duties.

It is unfortunate that nursing as an occupation for men should be receiving such poor encouragement, for it seems likely that in the coming years some of our great and growing demand for nurses must be met by men. Until about forty years ago the only male attendants were to be found in mental hospitals; and of course the chief use made of their services today is in the care of the mentally ill. One of the earliest schools to train men in general nursing was the Hackney Hospital, now under the LCC. Many have now been admitted to the register, and some are taking sister-tutorship examinations and university diplomas in nursing. Since 1930, when the poor-law institutions came under public assistance, increasing numbers of men have been appointed to municipal hospitals, and even to the higher administrative posts. Mental nursing seems to attract a particularly good type of man. The Society of Registered Male Nurses, founded in 1937, is now affiliated to the Royal College of Nursing. Before the war 19 schools in England and Wales trained male nurses, but several have had to suspend their courses because all candidates have been called up. It is to be hoped that after the war these schools and others will resume the training of male nurses and that more general hospitals will open their male wards to them.

Reconstruction

THE STUDENT VETERINARIAN

THE recommendations of the second report of the Loveday Committee on Veterinary Education in Great Britain[1] are based on the assumption that agriculture will be maintained in a healthy and prosperous condition, and the committee quote the recent estimate that animal disease causes an annual loss to the nation of £30,000,000. With this in mind they conclude that there will be an increased demand for the services of the veterinarian, and their recommendations are framed to produce an output of 220 veterinarians annually for the next ten years, with a possible decrease after that time. In the committee's view it would be futile to provide educational facilities if attractive employment were not available for graduates and in this connexion they draw attention to the importance of controlling unqualified practice. There will also probably be a considerable demand for veterinarians to enter the Colonial Services; now that some of the major transmissible diseases in the colonies are being controlled, the existence of less spectacular but none the less important conditions is being brought to light and the whole subject of animal husbandry requires more attention.

THE TEACHING CENTRES

There are at present four veterinary schools in Great Britain. The veterinary colleges at London, Edinburgh and Glasgow are self-governing institutions loosely associated with the respective universities, while Liverpool has a school of veterinary medicine within the university with an annual output of about 30 graduates. The committee propose that the existing college at Glasgow should be closed and that the university should establish a veterinary school similar in size and character to that at Liverpool. The London and Edinburgh schools together should not aim at an annual output exceeding 100 graduates, so it follows that further centres will be required to produce 60 graduates annually. The committee consider that the best educational facilities would be provided for the additional 60 graduates if veterinary schools were established by Cambridge and Bristol universities. They also hope that the association of the London and Edinburgh colleges with their respective universities will become closer and that they will eventually become schools of their universities. It is estimated that to provide the increased facilities for teaching and research at existing centres and to establish the new centres a capital outlay of £2,000,000 at prewar values will be required.

1. Cmd. 6517. HMSO, 1944, pp. 35, 6d.

Ever since the grant of a Royal Charter in 1844, the gaining of the RCVS diploma has been the sole means of entry into the veterinary profession and the only licence to practise therein. In their report of 1938 the committee concluded that this one-portal system was beneficial to the profession and should be retained. The tendency now is for universities not to undertake veterinary education unless students are reading for an internal degree, and the committee therefore recommend that university degrees in veterinary science should be modified so as to include all professional subjects of the five-year course; these degrees would then become registrable qualifications entitling graduates on payment of the appropriate fee to have their names placed on the RCVS register. A man with a university degree who had not had his name placed on the register would not legally be qualified to practise veterinary medicine. The committee claim that by this means the essence of the one-portal system would be retained. They realise that a body independent of the universities must be empowered to secure a minimum standard of qualification for the licence to practise and they propose that the RCVS council, altered in constitution, should be invested with additional duties in order that it may be fully equipped to act in that capacity. They therefore recommend that legislation like that in the Medical Act (1886) should be introduced to maintain minimum standards of veterinary education in the universities. The relevant clauses give the General Medical Council powers to maintain a minimum standard of education and examination at all medical teaching centres in the United Kingdom. Section 19 of the Loveday report does not make it clear why the relationship of the RCVS council to the universities should be different from its relationship to the extramural schools.

There is increasing recognition that the clinical as well as the preclinical parts of both medical and veterinary education should be brought into closer association with the universities but the committee emphasise that the RCVS council must remain the governing body of the profession and hope it will continue its examinations for the diploma and fellowship, and for the diploma in veterinary state medicine. It is estimated that the compensation to the RCVS for the loss of a proportion of examination fees would be unlikely to exceed £2500 a year.

THE CURRICULUM

The committee feel that the adoption of their recommendations will open a broader path for veterinarians who desire to read for higher degrees in science, and will bring university and veterinary students into a much closer association. In general this view will be strongly

supported, but there are dangers which must be appreciated and guarded against. The importance of integrating and correlating preclinical and clinical studies is well recognised; the outlook of veterinary medicine is different from that of human because the saving of individual life is not always the paramount objective, economic factors and the control of disease in the herd being equally or more important. It follows that the bias of the preclinical subjects for the veterinary student should be different from that of the medical student. The committee apparently recognise that pathology and bacteriology, and anatomy, are subjects which must be taught by specialists in the veterinary field; on the other hand, judging both by the content of the report and the proposed staffing they do not consider that physiology, biochemistry, genetics, parasitology and pharmacology require the same specialised study. This is surprising, for they are fully alive to the increasing importance of animal husbandry and the necessity of careful clinical training; and in the first report they recommend that there should be a second year of applied physiology which is the only sound introduction to clinical methods of diagnosis. It must be admitted that in the past pathology and bacteriology have dominated the picture; the physiology and biochemistry of the farm animals have not been studied to the same extent, but now that their importance is realised it is essential that senior posts in these subjects should be created capable of attracting the best men for teaching and research. Judging by the proposals for staffing and salaries, it would appear that the colleges will provide greater scope in these fields than the university schools. Physiology, biochemistry, genetics, parasitology and pharmacology are all subjects with a general scientific background but they can only be taught properly to veterinary students by veterinarians familiar with their particular application to veterinary problems, and with the facilities and inclination to pursue their studies in the animals concerned. Generalisations are not enough; a much more precise knowledge of these subjects as they apply to each species of the domestic animals is required; if this is not realised there is a danger that the whole orientation and outlook of the teaching may be wrong. William Youatt summed the matter up thus in the *Veterinarian* of 1839.

"We confess there are few things of which we have so much dread in the education of the veterinary pupil as these general systems of physiology, which are deemed by some persons to be so important. Every animal has a physiology of its own; and it is only by that knowledge of its conformation and its functions which it should be the object and duty of the attendant on that animal to acquire, that a useful and satisfactory practice can be grounded."

Research at teaching centres fulfils a larger purpose than at specialised research institutions; it not only increases knowledge but provides material for demonstration, and is a source of inspiration to both teachers and students. The committee rightly emphasise that adequate facilities and time must be available for the staff to conduct research. It again emphasises the importance of the field station and extramural teaching to obtain practical experience. It fully appreciates the importance of the ruminant in veterinary medicine, and it is therefore a little unexpected that it recommends the dog as the type animal for dissection. The sheep would be just as easy or easier to obtain and the student would gain first-hand experience of the most important type with which he has to deal.

It is inevitable that some aspects of the report will be criticised; but this need not lead to disunity. If suitable modifications were made as a result of discussion and further experience the major recommendations of the report should ensure that developments in veterinary education and research will keep pace with those in other fields. On this all who are working for the prosperity of agriculture will be agreed.

EUROPEAN ASSOCIATION OF CLINICAL PATHOLOGISTS.—A convenient brochure of 23 pages sets out the principles and rules on which the association is based and gives a list of its 75 members up to date. Nominations should be addressed to Dr. F. Pick, General Hospital, Walsall, Staffs.

In England Now

A Running Commentary by Peripatetic Correspondents

WHEN is a signature not a signature? Disregarding the layman's odious wisecracks about legibility one may submit that a form imposed against the will of the signatory ceases to have any value as a token of responsibility. As a civilian I invariably signed my name as Peter Popplethwaite and I continued to do so on entering the Army. Nothing happened for well over a year, and even when the axe fell I was constrained by natural modesty to assume that it was mere coincidence. At all events a General Routine Order appeared, couched in frigid terms, to the effect that the practice of using Christian names in signatures would cease forthwith. Apparently a hyphen was neither here nor there, and even a triple-barrelled monstrosity was disregarded; only the Christian name was anathema. And so I was obliged to restrain what had become the automatic and essentially personal act of a lifetime; I was no longer permitted to indicate my individuality even by my signature. The change-over was an experience as distressing as a misguided attempt to force a left-handed child to become right-handed. For three weeks I was in imminent danger of developing a stammer. The upheaval did not end there. I had to face the melancholy problem of my rubber stamp, for you must know that no signature is complete in the Army unless it is followed by the name printed in block capitals. The War Office, I reflected guiltily, must be littered with documents bearing this hateful impression—a Christian name in block capitals, mark you—handed on from one department to another and always eliciting the same facial contortions of painful surprise. "This, I said to myself, must not go on"; so I seized a razor blade and deftly cut out all but the initial of my Christian name. The result was not entirely satisfactory, for the operation left a gaping wound between one P and the next. No doubt the general staff at the WO will soon be cudgelling their brains to find a Christian name beginning with P and having five letters in it. But I won't tell them—at any rate, not until that GRO is "hereby cancelled."

* * *

Walter Elliot's broadcast on Sunday night has set me thinking about the West African. Until three years ago I imagined that one black man was exactly like another, but in fact even though closely related geographically they may be no more alike than chalk and cheese or ebony and boot polish. Among the staff and patients of the military hospital in which I served on the Gold Coast, the man from the Gold Coast Colony proper, that is from the south, could easily be distinguished from the Northern Territory boy. The average Colony man is of a short but fairly sturdy build, with thick lips and wide nostrils. He possesses considerable innate intelligence, and reflects in his way of living the influence upon his people of contact with Europeans for over five centuries. Thus he may speak, read and write English, profess the Christian faith, read his Bible, say his prayers, and take unto himself but one wife. He takes an interest in internal politics, less in external; he studies the newspapers and listens to the wireless. In short, he is a man of the world. The NT boy is taller, with facial characteristics more closely resembling the European. He speaks no English, or sports a little of a peculiar "pidgin" variety. He is slow to learn and will not be hurried. He is a pagan and will have as many wives as he can afford, or a Mohammedan, when he should have only four. His face, and perhaps his trunk, show the scars of tribal markings, a custom which is dying out in the south. He is interested only in what immediately concerns him. Briefly, he is "bush." Yet the man from the north is the more likeable fellow. Saving the exceptions that prove the rule, I found the NT bushman more trustworthy, with a finer sense of humour and greater loyalty. He had, above all, a measure of self-respect lacking in the average man from the colony proper. For instance, one of my patients, an NT man, complained, "It be twelve moon, and I catch no leave," and having simply stated his case he went away, leaving me to investigate the matter, his pride forbidding him to beg me to do

my best for him, to make special representations to his unit, or to favour him in any way. By contrast, here is a letter I received on the same day from one of our best interpreters, an intelligent man from the Colony. "Major Smith" is your correspondent.

"SIR,—I have the honour most obediently and Submissivelly beg to apply my interpreter Testimonial from Major Smith. That Sir, Major Smith is one of the high officers in this unit. That Sir, these are the dialects I am Speaking and understand: Moshie, Gonja, Mamprusi, Dagomba, Busanga, Yeriga, Sisala, Ashanti, Fanti, Frafra, Chamba, Tampluma, Nanuba, and Hausa, apart from English Knowledge making 15. That Sir, I wish Major Smith, medical officer to state these languages one by one, on my interpreter testimonial and with your own recommendation, Sir. I heard that Major Smith is among the first badge who shall be going home soon. For this, most of us are not glad at all. If so, may Almighty God guide major Smith day by day to his home sweet home to enjoy happiness, victory, and long life for ever. Amen. I am Sir, Yours obedient Servant.—XXX (Unit Interpreter)."

Yet I do not think the influence of European civilisation has had a baneful effect on the Colony man, apart from the inevitable growing pains. The NT boy is like Gunga Din, a better man. Incidentally, nearly all the best Gold Coast troops come from the Northern Territories. The tribes on and near the coast can, however, boast of many illustrious families who include among their members doctors, priests, lawyers and merchants of high repute, and who would lose nothing by comparison with the average British family. They are the "educated nobles" of M. Felix Eboué's dream for French Equatorial Africa (see *Times*, May 24, p. 7), which nearly came true under his enlightened guidance—something vastly different from "a native remodelled on European lines."

* * *

There has been a lot of correspondence in *Science* since F. W. Nitardy suggested that time passes more quickly for the old because its speed is proportional to the individual's total remembered experience—"For instance, at the age of 8, when our memory might go back over 4 years, a year would represent 25% of our total remembered time experience, and hence . . ." No, no, Mr. Nitardy, surely it's not as simple as that.

If one tackles this problem objectively it is convenient to consider the fly (man) as stationary but journeying against a revolving drum (time). Really, of course, as far as man is concerned apart from change in himself and his surroundings there is no such thing as time—the fly's revolving and the drum's stationary—but even for a bit of igneous rock there is a certain amount of atomic activity at the surface, though time must go about as slowly for it as for anything on the planet. Like other old things it may have marvellous memories—"When I was a Solar Vapour, my dear, . . ." As you were—our fly. It is obvious that when our fly says that time is going slowly for him, he does not refer to the moment of speaking (X), but to the immediate past (A) and the prospect in his mind of the immediate future (B). Take B first. It is well known that dreaded engagements, interviews with headmasters at 4 ft. 6 in. or with dentists upwards, also events that one looks forward to with such ecstasy that nothing matters in between, all prolong B by giving an acutely active mind nothing to do but gape and mark-time. When however the great event comes to X, and B passes into A, it seems to have gone in a flash, for there's nothing to mark its passage, and it is the very substance of A to be a series of milestones. If arbitrarily we fix X itself as 5 seconds, then it can be enormously drawn out by pain, danger, or by voluntary effort, as Kim did by repeating his own name, scrutinising the Kim-fly on the drum, as it were. New experiences, then, pleasant and unpleasant, the first few days of a holiday or learning anything, retard the rotation of our drum, and that is one of the reasons why child-time is long. Routine, the use of well-worn thought paths with short-cuts like words, idioms and phrases hasten our drum's rotation; that again slows up X for children, for they think pictorially. When paths are so habitually used that thoughts can traverse them blindfold, then A has nothing to mark it and you get the amnesia for recent events of old age.

If any child wants to hasten the passage of time and they all do, for only thus are they lured to maturity, then there must be no glorious prospects in B, no wonderful experiences in A, just mildly happy routine like sleep, which will lead rapidly to and be almost indistinguishable from the grave—or the igneous rock. And for any old flies who don't want to revolve so quickly, one must advise that they fill their B books with the most horrible engagements, that they go over their A again and again, even as the club bores do; there must be no reminiscent holidays in the well-censored, glowing, ultra-A rays, no dull routine and mental freewheeling, no. . . . Suddenly one realises that one may be causing a lot of vacancies in senior staffs, that these are essentially protective mechanisms, and that he who grapples to stay Time may sight Eternity.

* * *

I have attended many committees but this one was memorable, because the Chairman gave us a small dinner beforehand, and because our conversation round the table touched on so many curious things. The pièce de résistance, at a small restaurant in the wilds of the country, was plaice, two per plate, cooked in the proper fashion. This miracle of the fishes turned the talk to fish in general and so to phosphorescence. The Artist's wife assured us that the coarse fish of today are phosphorescent inside as well as on the surface. She has cut too many in half to be mistaken. The Architect was moved to reminiscence: long ago he lived in Guildford Square where the larder is one with the cellar. Going downstairs one night he was amazed by a faint light in the depths. This proceeded from a steak, intended for the evening meal. He called his wife and both observed this wonder. Next day they took it to the butcher, a man whose long experience of complaints had never included any self-illuminating steaks. But he came round to the cellar that night and had to confess that this was one. Being a man who believed in his steaks, he assured them that no harm could come of eating it; so they did, and he was right.

At this point the Engineer came in, rather late, having been to see a man about a bridge. The Chairman's wife asked him whether it was true that iron could get tired. Yes, he said, it could. If you take a piece of iron rod and compress it from end to end, you get a regular degree of shortening proportionate to the pressure used. When the pressure is taken away the rod recoils to its normal length. If you keep on experimenting with the same rod it will lose its power of recoil earlier and earlier, and is quite likely to snap under pressures which would merely have compressed it earlier on. We passed to other properties of metals and the chairman told us about his mine in Spain. This produced nothing very exciting until they struck a new ore containing lithium. The excited chairman took a lump of ore to the offices of ICI hoping for a sudden fortune. ICI were not so enthusiastic. They thought lithium was a queer metal and expensive to extract. "Why so?" asked the Chairman. He was astonished to learn that lithium is so light that it has to be carefully covered to prevent its evaporating, and if put in an iron container it will seep through it like water through a paper bag.

The Architect contributed our last story of the exceptional. Once upon a time he was an entomologist and used to visit Epping Forest from which, one day, he brought back two glow-worms to the house in Guildford Square. Here in his garden was a Virginia creeper which grew up over the house. He placed the glow-worms at the foot of the creeper and went indoors to the usual phosphorescent meal (for they never cured that larder: everything put in it glowed). Meanwhile the glow-worms glowed, troubled by that sexual urge which alone lights up their lamps. All evening the two saddened little ladies of Epping tended their beacons at the foot of the Virginia creeper hoping for inexpressible approaches. None came; but a man of indeterminate age and vast leisure leaned over the railings and gazed astonished. Presently he gathered others with a wave of his hand, and they too gazed in silence at the unearthly lights. The Architect does not know how long they stayed; he went to bed. But they were gone in the morning and so were the glow-worms. Perhaps they had made up a party and gone to Epping Forest for the day.

Letters to the Editor

UNPADDED PLASTERS, RIGID DRESSINGS AND GANGRENE

SIR,—Amputation of arms and legs for the avoidable disaster of circulatory obstruction is occurring with greater frequency than in former years, and having regard to the responsibilities of the near future we are alarmed by recent teaching that plaster casts and rigid dressings may be applied without padding to fractures, burns and wounds even during the first twenty-four hours after injury. Last month a young pilot sustained bilateral fractures of the ankles and burns of the legs; both lower limbs were amputated on the sixth day, not because the fractures were severe or because the burns were complicated but because the surgeon in a civilian hospital applied unpadded plaster casts within twenty-four hours of injury and failed to recognise the circulatory embarrassment which developed. Another pilot lost his arm; the injury was a simple fracture of the forearm; it was the pressure of an unpadded plaster cast on a swelling limb which caused gangrene and amputation. Several patients with imperfectly drained infected fractures of the tibia have suffered the tragedy of amputation because plaster casts applied immediately after operation were unpadded, and many others who escaped amputation are permanently crippled by ischæmic paralysis of the toes and foot.

It is perfectly futile to say that unpadded plasters are safe if the cast is split, the limb elevated and the digits watched. Not only may these precautions fail in closed fractures, and in imperfectly drained open fractures, but during emergency casualty evacuation it is quite impossible to be certain that every limb will be constantly elevated and every toe constantly watched. No surgeon has the right to demand that overworked nurses and harassed orderlies should accept this additional burden merely to satisfy his whim—for the use of unpadded plasters at this stage of treatment is no more than a whim.

The danger is not limited to plaster casts; it applies to every rigid dressing which encircles the limb, and this includes unpadded cotton bandages and coagulants used in the treatment of encircling burns. A few weeks ago one of us was obliged to amputate a limb through the upper third of the thigh because gentian violet had been used for the coagulation of an encircling burn. The patient narrowly escaped bilateral amputation; the other limb, which was also burned, had been similarly treated and it was saved with great difficulty. We might also refer to the melancholy results of coagulation of encircling burns of the fingers in earlier years of the war, or to the profoundly moving account of bandage necrosis of all fingers of both hands in the book *One of our Pilots is Safe*. There are some who still believe that reactionary œdema of burns and fractures is a passive process which can be controlled by external pressure without danger to the circulation. Their enthusiasm for pressure dressings in burns may be a legitimate field for research; but we deplore the suggestion that it should be adopted generally as a first-aid measure, particularly at a time when the elasticity of dressings is unreliable.

Let there be no doubt. If a limb is likely to swell by traumatic or inflammatory reaction give it room to swell. Don't use unpadded plaster casts in the early stage of treatment; even if it is proposed to split the cast and to elevate it, don't use an unpadded cast; don't use tight unpadded cotton bandages; don't treat encircling burns with coagulants.

ARCHIBALD MCINDOE.
London. R. WATSON-JONES.

A DRIED EGG MEDIUM

SIR,—In their article of May 20 (p. 654) Dr. Kahan and Dr. Close write: "The large proportion of cases diagnosed as tuberculous but where no tubercle bacilli were found is a challenge to bacteriologists to improve their technical skill." They suggest one obvious improvement: a more extensive culturing of specimens, say six egg tubes per specimen. Owing to the shortage of eggs, they complain, such culturing is not practicable today.

I should like to draw attention to the fact that dried egg powder may be used in the preparation of media for the cultivation of tubercle bacilli. The formula of a dried egg powder medium based on Petragnani's method giving good cultural results will soon be published in the *Proceedings* of the Pathological Society.

St. George's Hospital, London. IM. FRIEDMANN.

CLINICAL TRIAL OF A PENICILLIUM PREPARATION

SIR,—In view of recent notices in the popular press of a therapeutic substance called 'Vivicillin,' prepared from *Penicillium notatum*, the following account of a brief experience with this preparation seems of some importance.

Tests in vitro, using undiluted vivicillin, failed to demonstrate more than a trace of penicillin, notatin, or other antibacterial substance. The serum of patients receiving intramuscular injections of vivicillin was tested on 12 occasions at varying intervals after administration of the drug. The slide-cell technique was employed and the test organism was the standard Oxford H staphylococcus. On no occasion was any definite bacteriostatic power detected, even in the undiluted serum.

The following cases were treated:—

(1) A man with an indolent traumatic ulcer of the leg received 15 c.cm. of vivicillin intramuscularly on 4 successive days. The last dose produced a rigor and fever. The flora of the wound—*Staph. aureus* and hæmolytic streptococcus—was not affected by the treatment, nor did the wound show signs of healing.

(2) A man with a mid palmar-space infection had his hand incised. Healing was slow. Ten days after incision 15 c.cm. of vivicillin was given intramuscularly on 3 successive days, after which he refused further injections owing to the pain caused. A week later the hand was healed with full movement. The infecting organism was *Staph. aureus*, wound swab after treatment showing diminution in the number of organisms grown.

(3) A man with a very chronic varicose ulcer of the leg received treatment by the local application to the ulcer of 1 c.cm. of vivicillin on alternate days for 14 days, gauze being soaked in the solution, placed on the wound and covered with paraffined gauze. Before treatment the wound swab grew hæmolytic streptococcus and *Staph. aureus*; after treatment *Staph. aureus* and diphtheroids. The ulcer did not show signs of healing.

(4) A man with a chronic ulcer of the hand received local treatment as described for case 3. Before treatment hæmolytic streptococci and *Staph. aureus* were grown. After a week the flora had not changed. After treatment was completed only *Staph. aureus* was recovered. The ulcer showed no signs of healing.

(5) A man with a varicose ulcer of the right leg received local treatment as for case 3 for 11 days. The wound grew diphtheroids throughout the treatment, and 8 days after its cessation hæmolytic streptococci were found. There was no clinical improvement.

(6) Exactly similar to case 5.

(7) A man with a recurrent carbuncle of the neck received 15 c.cm. of vivicillin intramuscularly daily for 5 days. There was no local or general improvement in his condition. *Staph. aureus* was present throughout.

(8) A woman who had suffered for two years from recurrent boils, especially in areas subjected to minor traumata, received 4 intramuscular injections of vivicillin. She developed an abscess at the site of one injection. Pus from the abscess grew hæmolytic streptococci and diphtheroids.

(9) A man suffering from chronic ulcerative colitis, from whom an atypical non-lactose-fermenting organism had been isolated, was treated with sulphaguanidine and succinyl sulphathiazole without success; 15 c.cm. of vivicillin was then injected intramuscularly each day for 4 days. The injections were followed by pyrexia and well-marked local inflammation and were stopped. The bowel symptoms and fæcal flora remained unaffected.

(10) A man suffering from subacute bacterial endocarditis showed a heavy growth of *Strep. viridans* on blood-culture. Daily intramuscular injections of 20 c.cm. of vivicillin for a week did not influence the course of the disease.

(11) A woman suffering from chronic gonococcal cervicitis, resistant to sulphonamides and local treatment, was given five daily intramuscular injections of 12 c.cm. of vivicillin. Smears and cultures became negative after the second injection but were again positive two weeks after cessation of treatment. A further course of vivicillin injections failed to effect improvement.

(12) A woman suffering from chronic staphylococcal septicæmia with recurrent periosteal abscesses was given seven daily intramuscular injections of 15 c.cm. of vivicillin without effect on the course of the disease. There were severe local and pyrexial reactions and pus accumulated rapidly during the treatment.

All streptococci, staphylococci and gonococci isolated from this series of cases were found to be penicillin-sensitive. Penicillin was not available for our cases, and we had hoped that vivicillin would prove an effective substitute. Our trial did not however demonstrate that vivicillin had any bacteriostatic or therapeutic effect on the conditions we treated.

We are indebted to the Watford Chemical Co. Ltd., for supplies of vivicillin.

T. CRAWFORD,
Specialist in Pathology.
R. S. HANDLEY,
Officer i/c Surgical Division.
W. H. HARGREAVES,
A Military Hospital in England. Officer i/c Medical Division.

FIRST AID FOR FRACTURED SPINE

SIR,—My letter on the Clarke-Moir method of moving a patient with a fractured spine (*Lancet*, March 11, p. 354) has, as I hoped, produced some helpful criticisms and suggestions, for which I am grateful. Because of the diversity of views on this matter, a compromise method has now been devised. To transport the patient in the position in which he lies presents in practice many difficulties. As Mr. E. A. Nicoll, FRCS, of Mansfield, writes :

> "These patients (in the collieries) are always found in a position of acute hyperflexion . . . the most important problem is to convert them from this position of hyperflexion into one which makes it possible to carry out your instructions. It is no use saying the patient must not be moved and must be splinted as he lies, because in that case he would have to be trussed up in the most fantastic gymnastic positions. . . . I have no doubt in my own mind that lying on the back with the natural curves supported is the best and safest position, and certainly the most comfortable for the patient."

The consensus of opinion seems to favour transport of all cases of suspected fracture of the spine in the supine position. This was the basic principle of the original Clarke-Moir method (*Brit. med. J.* 1942, ii, 529), founded on the opinion of Prof. Harry Platt and Air-Commodore H. O. Clarke. On Sept. 19, 1942, Professor Platt wrote to me :

> "With regard to the first-aid teaching on the immediate handling of fractures of the spine . . . I myself therefore would agree with the teaching that all spinal injuries can be safely transported in the supine position, provided (1) the natural contour of the spine is maintained by appropriate pillows; and (2) no flexion or indeed hyperextension movements are permitted during the lifting of the patient."

Air-Commodore Clarke in his article on First Aid in Fractures in the booklet *First Aid and the Medical Practitioner* wrote :

> "Fractures of the spine at any level should be transported in the supine position on a hard flat stretcher maintaining as far as possible the normal contour of the spine by inserting a small pillow or pad (e.g., a folded garment) beneath the lumbar and cervical spines. It is of the greatest importance than an individual with an injured spine should be lifted on to the stretcher with his back supported at several points. If the spine is allowed to sag excessively into hyperextension or hyperflexion as may occur when a man is lifted by his shoulders and legs, irreparable damage may be done to the spinal cord. To summarise . . . Lift the patient with his spine supported at numerous points on to a hard, flat stretcher with a pad behind the lumbar and cervical regions."

It has therefore been decided to revert to the original method of transporting all cases of suspected fractures of the spine, at whatever level, in the supine position.

INSTRUCTIONS TO FIRST-AIDERS

A.—In *all* cases where there is a history of accident or injury to the neck or backbone, with pain and shock, even though there is no paralysis of the arms or legs :

(i) Warn the patient to lie still.
(ii) Leave him in the position in which he lies.
(iii) Cover him up to keep him warm.
(iv) Send for the doctor.

B.—If medical assistance will soon be available, do not attempt to move the patient unless he is in danger of further injury. Stand by to assist the doctor. Meanwhile send for helpers, hot-water bottles (a layer of blanket must be kept between the bottle and the patient to avoid burning the paralysed limbs), blankets, a stretcher (improvised or otherwise), 8 triangular bandages and 2 strong poles.

C.—If the patient must be moved before a doctor arrives, you must have sufficient helpers—6 trained first-aiders if possible.

(i) *Prepare the stretcher.*—The stretcher must be hard and flat; if a canvas one, it must be boarded. Three blankets should be used if available. One of the simplest methods of blanketing is that devised by Mr. Dunlop, of Prestwick.

The first blanket is folded in three, lengthwise on the bed of the stretcher. The second blanket, the strongest obtainable, is placed lengthwise on the stretcher, with its centre over the centre of the stretcher bed; when it is in position two small pads (e.g., folded garments) are placed on it to support the neck and loins. The third blanket is kept in readiness folded in two and is eventually placed over the patient, the flaps of the second blanket being pinned over it.

(ii) *To prepare the patient.*—If the patient is found in any position other than on his back, he is with the greatest care and gentleness turned on his back as follows :

If found lying on his side.—Six helpers are required. No. 1 steadies and supports the patient's head and neck, nos. 2 and 3, with feet apart, stand on one side of the patient, at the level of his shoulder-blades and hips. Nos. 4 and 5 stand on the opposite side. No. 6 is ready to lift the legs. They all bend down; no. 1 supports head and neck, nos. 2, 3, 4 and 5 firmly grasp the rolled up edge of the clothing, no. 6 holds the legs. On the command "Turn" the patient is slowly and very carefully turned on to his back, no. 1 helper taking great care that there is no bending or twisting of the neck or head.

If found lying on his face.—Three helpers stand on one side of the patient, no. 1 at the level of the head, nos. 2 and 3 at the level of the shoulder-blades and hips; the fourth is ready to lift the legs. Movement I: They all bend down; no. 1 steadies and supports the head and neck, nos. 2 and 3 grasp with hands apart the rolled-in clothing on the far side of the patient, and very gently and carefully turn him over on his side, the fourth helper moving the legs. Movement II consists in turning him over from his side to his back, as described above. Two movements ensure that he will not be turned too quickly.

When he is on his back :

(*a*) Place padding between the ankles and tie them together with a figure of 8, knotted under the soles.
(*b*) Place padding between the knees and bind the legs to one another with 2 broad fold bandages, one round the thighs and one round the knees.
(*c*) Without moving the patient, pass 5 broad-fold bandages under the natural hollows of the body, 1 under the neck, 2 under the loins and 2 under the knees, from alternate directions (to achieve this they are looped over the end of a splint which is then pushed through the hollow). Gently work these bandages into position so that they lie under the head, the shoulder-blades, the buttocks, the thighs, and the calves.
(*d*) Pass the poles through the loops on each side and tie the free ends of the bandages over them, taking a turn round the pole, to prevent it from slipping.

(iii) *To move the patient on to the stretcher.*—The poles are grasped by assistants, preferably 3 a side, with hands apart. Slowly and evenly the patient is lifted and the stretcher is placed beneath him; he is then lowered into position on it, so that the pads support the cervical and lumbar spines. He is covered with the blankets.

(iv) *To move patient from the stretcher to fracture bed or table.*—The stretcher is brought to the bedside, the top blanket is removed, and the poles, if they have been taken out, are again passed through the 5 looped bandages which are still in position. The flaps of the blanket on which the patient is lying are then rolled in round the poles to give additional support. With hands well apart, the helpers grasp the poles and the patient is slowly and gently lifted on to the fracture bed or table and kept in that position till seen by the surgeon.

Cemaes Bay, Anglesey, N. Wales. J. L. MOIR.

MITES INFESTING CARCINOMA OF THE JAW

SIR,—A farmer's wife, aged 54, complained of a swelling in her mouth, and was found to have a growth about an inch long on the lower gum, extending forward an inch or so from the angle of the jaw. She was edentulous, and the surface of the growth was in part covered with leucoplakia, in part papillomatous. She complained of ear-ache and anæsthesia in front of the growth, and the diagnosis was made of papillomatous carcinoma invading the mandible. Clinically no glands were invaded. A biopsy was performed and the growth was found to be infested by a mite of the genus tyroglyphus, possibly *T. longior*. Large quantities of fæces from the mite were found in the material from the deeper layers of the growth. Some of the mites were living, and eggs present. These findings suggest that the mite had had a long stay in the situation in which it was found. Mites of this family live on cheese, flour and dried fruits, and it seems worth while to record the fact that a species has been found living in human tissues.

Beaminster, Dorset. R. E. HOPE SIMPSON.

SKIN-TEST IN CYSTICERCOSIS

SIR,—According to Verney (*Post-Grad. med. J.* April, 1944, p. 114) a negative reaction to complement-fixation and skin-tests does not exclude cysticercosis but a positive reaction is of the greatest clinical significance. In the following case, in which epilepsy was almost certainly the result of cerebral cysticercosis, a skin-test on the lines of the Casoni reaction was positive.

A well-built and well-nourished male Indian Muslim, aged 31, complained of multiple subcutaneous nodules and epileptiform fits. He had no previous history of epilepsy or head injury; and there was nothing to suggest infection of the central nervous system in the past. Being a Muslim, he had never eaten pork. The first nodules were noted in the abdominal wall 9 months ago; later, more appeared in tongue, thigh and back. These caused no symptoms. Three months ago he developed fits and was admitted to hospital on two occasions. At the second, he consented to biopsy, and the specimen was reported by the Central Pathological Laboratory MEF to contain *Cysticercus cellulosæ*.

He was getting typical epileptic fits preceded by a constant aura consisting of dancing specks before the eyes and giddiness a few minutes before the attack. Multiple small ovoid cysts were palpable, scattered over the subcutaneous tissue of the body, and embedded in the tongue. They were mobile, soft and rubbery, with no suggestion of calcification. No other physical signs were elicited. His blood-pressure was 102/78 mm. Hg.

Repeated examination of stools revealed neither segments nor ova. Blood-count: white cells 5800 (polymorphs 63%, lymphocytes 32%, large mononuclears 4%, eosinophils 1% in a count of 200 cells). In a later count of 500 cells there was still no eosinophilia, only 3% being found. X-ray examination of skull, lungs and muscles revealed no calcified cysts. Kahn test negative.

Intradermal test.—Cyst fluid, 0·5 c.cm., was injected into the skin of the left forearm, and 0·5 c.cm. of sterile broth into the right forearm. Broth was used instead of saline lest a reaction due to proteins in the cyst fluid should confuse the result. In each case a papule about 0·5 cm. in diameter was raised, and readings were taken after 15, 30, 45 and 60 minutes. The left arm showed a rapid increase in the size of the papule, reaching a maximum of 3·5 cm. in about half an hour, and remaining that size throughout the rest of the period of observation. Surrounding the papule was an irregular erythematous areola, and the patient complained of itching but of no pain or other symptoms. The control papule on the right arm rapidly regressed until at the end of an hour it was hardly visible.

A second subject, a strict vegetarian who had never eaten meat, and whose stools were free from helminths, was tested in the same way at the same time. Though the cyst-fluid papule on the left forearm persisted longer than the broth papule on the right, it did not increase in size, and no erythema developed. This result was considered to be negative.

I should like to thank Lieut.-Colonel R. J. V. Pulvertaft for his help in reporting this case.

Field Laboratory, MEF. M. HATANGDI.

MEMBERSHIP AND FELLOWSHIP

SIR,—I desire to point out, with respect and diffidence, a weakness in the report on medical education recently published by the Royal College of Physicians of London. This report and others would, I suggest, attract more enthusiasm and interest if one striking anomaly in the affairs of the College were removed. I refer to the fact that in the work of the College members are not allowed to play any part at all. There are about 1700 members and most of them are engaged in work of high responsibility. There are more than 1000 members of over ten years standing and the great majority are engaged in teaching, consulting practice, public health or the Services. But all are rigidly excluded from any chance of working for the College. Under the existing constitution of the College the great majority will never play any part in the advance of the College. The remedy is simple. More freedom should be accorded to members to secure fellowship of the College. Everyone knows that the present system whereby members are somehow elected to Fellowship is archaic and anomalous. For example, out of 1016 members of over ten years standing in January, 1944, only 22 were elected to fellowship in April, 1944. Can anyone seriously contend that out of 1016 members only 22 good men could be found?

Peterborough. G. F. WALKER.

BLOOD-CULTURE IN MENINGOCOCCAL BACTERIÆMIA

SIR,—The reply to Dr. Pick's inquiry as to the culture media used by Captain Dansie and myself for blood-cultures in our case of chronic meningococcal bacteriæmia (*Lancet*, March 18) is that 5–10 c.cm. of blood were added to 100 c.cm. of nutrient broth containing 1% glucose, and subcultures were made as necessary on to blood-agar plates by the EPHLS at Cambridge. It is well recognised that several cultures are often needed before meningococci are grown, and with unlimited attempts this might be possible in every case. However the risk of meningitis supervening, as occurred in Dr. Pick's case, sometimes demands immediate treatment and in such cases the diagnosis must rest upon the characteristic clinical syndrome and dramatic response to sulphapyridine.

Department of Medicine, University of Cambridge. LAURENCE MARTIN.

CENSUS OF MEDICAL WOMEN

SIR,—The Medical Women's Federation considers it important to find out exactly what medical women are now doing—e.g., how many after qualifying give up professional work for a time or altogether—and is undertaking a survey for this purpose. A questionnaire is being sent out by a representative from every medical school in Great Britain and Northern Ireland which admits, or has admitted, women students. May I, through your journal, urge all medical women, *whether engaged in medical work or not*, to complete and return the questionnaire without delay. Owing to change of name or address some of the forms may go astray, and I would ask anyone who fails to receive a form to apply to the office of the Federation (at the address given below) in order to be put in touch with her medical school representative. In the case of graduates from the London (RFH) School of Medicine, the inquiry is being conducted by Prof. Lucas Keene. At all other medical schools the dean's office is not concerned and has no information to give. Finally, my request does not apply to women who qualified from UCH (London) or from Birmingham

medical schools, as the information from graduates in these schools has already been obtained.

Medical Women's Federation, 73, Bourne Way, Hayes, Bromley (Kent). JANET K. AITKEN, President.

THE BRIDGE IN GALL-BLADDER SURGERY

SIR,—Mr. Holman's letter prompts me to say that the cause of pulmonary embolism is clouded in mystery. I had operated on over 100 cases of ruptured peptic ulcer, 1000 cases of appendicitis and 1500 of hernia before a death from this cause occurred in each of these groups. So far as operation on the biliary system is concerned, I have used some sort of bridge to elevate the loin ever since Mayo Robson introduced that position over forty years ago, and I cannot recall a single death from pulmonary embolism. In my practice most examples of that fell condition have followed the radical cure of hernia. I regret that at the moment I cannot search out exact dates and figures. G. GREY TURNER.

Parliament

ON THE FLOOR OF THE HOUSE

MEDICUS MP

As far as white-papers are concerned the House is getting well into its postwar reconstruction stride. The last day before the adjournment for the Whitsun week brings *Employment Policy* (Cmd. 6527. Pp. 31). This piece of home work will no doubt be swotted up by the diligent MP for a debate when the sessions of the House begin again.

The first week after Whitsun is to be devoted to Colonial affairs, the location of industry, rural water-supply and sewerage, and food. The increasingly important place given to Colonial affairs is welcomed by members as a healthy sign of the need of attention to what has been a "depressed area," at least in the political sense. Schemes under the Colonial Development and Welfare Act up to March 31, 1944, amount to over £4 million for development and to over £224,000 for research. Much of this development is aimed at improving nutrition in the Colonies—a £150,000 grant for producing food yeast in Jamaica and grants for the improvement of agriculture (including soil structure) in Kenya, Bechuanaland, Barbados, British Guiana, British Honduras, the Virgin Islands and Jamaica. A medical officer of health is to be appointed for the three territories in South Africa which are under Imperial administration—i.e., Basutoland, Bechuanaland and Swaziland. Medical and health services in the Gambia are to get a grant of £37,000 and a joint veterinary service is being established for Gambia and Sierra Leone at a cost of £72,000.

The chief debate this week has been that on foreign policy opened by the Prime Minister. All attention was concentrated on the war in the West and only in Mr. Eden's reply, in answer to specific questions, was there mention of China and the war against Japan. That tremendous chapter has yet to be fully opened and will reveal vast areas over which the desolation of war with its pestilences and famines has been spread on a scale even greater than in Europe. Because of this we need to build up our own food production strength and the House approves Mr. Hudson's statement that the Ministry of Agriculture has agreed to guarantee a market for four years for all the meat and milk that British farmers can produce at prices not less than those now prevailing.

QUESTION TIME

Nutrition in India

Wing-Commander R. GRANT-FERRIS asked the Secretary of State for India what steps were being taken to improve nutrition in India by providing synthetic vitamins and food yeast as additions to a diet mainly of cereals.—Mr. L. AMERY replied: Apart from their use by the Services, large supplies of synthetic vitamins have been distributed under medical supervision for the treatment of famine victims in Bengal. World supplies are limited and there cannot at present be any question of their general use as part of an Indian diet. But the results of experimental administration in Bengal and by the Services are now available to the Government Nutritional Research Laboratory at Conoor which exists to study and recommend possible improvements in nutrition in India. Plans for the production of food yeast and its use in civil and military diet are before the authorities in India and are to be the subject of consultation with experts who will shortly be available in that country.

Health Survey in India

Miss I. WARD asked the Minister if he would give the terms of reference of the Health Survey and Development Committee and when it was likely to report.—Mr. AMERY replied: In connexion with postwar reconstruction plans, the committee is "to make a broad survey of the present position in regard to health conditions and health organisation in British India and to make recommendations for future development." It is hoped that it may report this year.

Industrial Nurses for Hospital Work

Replying to a question Mr. ERNEST BEVIN announced that in order to strengthen the staff of the hospitals in the near future he was arranging that there shall be loans of services of a proportion of industrial nurses from factories where they can best be spared. He had also recently reviewed the cases of the younger women employed as industrial nurses with a view to their transfer to hospital work. His general policy was to allow industrial nurses to be released for hospital work, if they so desire, subject to the need in some cases for providing substitutes beforehand.

SERVICE MEN AND GASTRIC DISEASES.—Mr. PALING said that up to the end of March, 1944, pension had been awarded for disabilities in the gastro-intestinal group in over 25,000 cases.

MEDICAL SUPPLIES FOR CHINA.—Mr. EDEN announced that from the United Aid to China Fund medical supplies to the value of over £6500 had been sent to China. As regards the War Organisation an allocation of £100,000 had been made for the purchase of medical supplies and drugs, of which some £25,000 had already been supplied and the balance was in the course of supply and transport. Over £200,000 had been raised by the former British Fund for the Relief of Distress in China and distributed there on relief work and the purchase of medical and hospital supplies.

Public Health

VENEREAL DISEASES

TESTS ON COMPLETION OF TREATMENT

A revised leaflet (Memo V. 21), prepared by the Ministry of Health, sets out in convenient form the most practicable of the tests which should be applied before a person who has suffered from gonorrhœa or syphilis is (in the official phrase used for classification) "discharged after completion of treatment and observation." Medical officers of treatment centres are asked, without surrendering their discretion, to give careful consideration to the adoption of the methods described. The memo will give helpful guidance also to practitioners appointed by local authorities to undertake examination and treatment at their own surgeries.

GONORRHŒA

In both sexes it is assumed that treatment has been continued until evidence of a persisting gonococcal infection has disappeared. The blood should be examined a week after suspension of the treatment and every month thereafter for a minimum of three month for the syphilitic serum reactions.

Males.—On suspension of treatment the patient should be provided with microscope slides and instructed how to spread them with any urethral discharge which may appear.

A week after suspension of treatment the early morning urine, or urine which has been held for a minimum of four hours, should be examined for heavy threads after an attempt has been made to obtain discharge at the meatus. Any threads or discharge that may be seen should be examined bacteriologically. Specimens of prostatic and vesicular secretion should be obtained for microscopical examination. Cultures of both urethral discharge and the prostato-vesical secretions are desirable.

If no evidence of persisting infection is obtained by this means, an attempt should be made to stimulate a discharge

by filling the anterior urethra with a provocative solution, such as a 1 in 6 dilution of the following solution: iodine, 1; potassium iodide, 2; distilled water, 300; this should be retained for two minutes. As a further provocative measure, the prostate and seminal vesicles should be massaged after the bladder has been emptied, and the secretion should be left in the urethra.

Assuming that no evidence of a relapse is obtained by these measures, they should be repeated each week for a month and thereafter each month for two more months. At the end of this time the anterior urethra should be examined with the urethroscope, and a full-sized metal sound should be passed into the bladder. These manipulations also may provoke a discharge of which the patient should be warned to obtain a specimen.

Females.—A week after suspension of treatment specimens should be taken from the urethra, cervical canal and rectum and should be examined in stained smear and culture. In the case of the urethra and cervical canal, specimens should preferably be taken the day after painting with a provocative chemical such as the iodine solution mentioned above for men. In addition, the examination should include inspection of the orifices of the bartholinian and any para-urethral ducts with bacteriological examination of any secretion which can be expressed from them.

The examination, preceded by the provocative painting mentioned above, should be repeated every week for a month and thereafter every month for three months, the specimens being taken just after menstruation, if this is occurring. Cultures are often more successful when taken on the second day of the period, but this does not appear to be a good time for taking smears of cervical secretion.

Before final discharge a careful pelvic examination should have excluded any residua of infection in the pelvic viscera.

SYPHILIS

After completion of treatment the blood should be tested every three months for the first year, and every six months in the second one. At each visit a thorough clinical examination should be made. The spinal fluid should be tested at the end of the treatment, or earlier if the blood reactions are resistant, and the test should be repeated at the end of the two years of observation which are regarded as minimal.

These tests are regarded as minimal for both sexes. If any relapse has occurred, both blood and spinal fluid should be tested more frequently. In the case of females, satisfaction of the above tests is not considered to be a sufficient safeguard against infection of the fœtus in the event of pregnancy, and treatment throughout the whole period of gestation should be advised.

From the School Reports

Dr. J. M. Young can report a good level of general health among the school-children of *Glasgow* in 1942–43. All twelve of the average measurements (average heights and weights for each of the six main age-sex groups) stood higher than the corresponding figures for 1920–39, and the medical officers assessed the children's nutritional status as equal to prewar. The most important improvements since the year before have been the increased number of children with sound teeth (18·4% compared with 13·2%) and the reduction of scabies, though 17,000 cases were treated in the clinics in 1943 compared with 2000 in 1939. It would have been interesting to know how Glasgow deals with its contacts and what use has been made of the Scabies Order. There has been a deterioration in the condition of the children's clothing and footgear, though one or both were supplied to no less than 20,276 children. The total number of meals supplied has risen from 2¾ millions to over 7 millions, and of these 1 million dinners were given to necessitous children, more than twice the figure for 1942. Glasgow has been lucky in being able to maintain a standard of routine inspection comparable to that of previous years —namely, three complete age-groups. The percentages of defects remain remarkably constant, except those of the tonsils thought to need operation which have risen from 1·8% to 3·2% in four years. It is not easy to find out from the report how many Glasgow school-children have lousy heads. The unprofitable classification into major and minor infestations is retained, together with the ambiguous euphemism "cleanliness"; and the plain issue is obscured by no less than four different tables of different inspections with results ranging from 12·3% to 53·8% lousy.

From Cumberland.—Dr. Kenneth Frazer also reports a reduction in the incidence of scabies, from 709 in 1942 to 516 cases in 1943. "Verminous conditions" and "skin diseases" have substantially declined as well. The number of cases of bronchitis found at medical inspection has risen from 117 to 191, while there has been a drop of some 800 in the number of children found to need dental treatment. Like most others in his position Dr. Frazer is concerned at the doubtful quality of the milk supplied in schools, though he has all school milks tested biologically for tubercle bacilli twice a year, and obtained positive results in only 0·9% of them. Inevitably work on the improvement of schools has come to an end, but there has been some useful reconstruction work in the last six years. In the rural schools alone 13 have been provided with central heating, 14 with electric light, and 20 with water-carriage sanitation to their own treatment plants. The Cumberland dental scheme is a notable one. When the child first enters school the parent is offered one of three alternatives—full dental supervision and treatment throughout school life; emergency treatment only; or no treatment at all. That this scheme, administratively so simple, does not make the service unpopular is shown by the fact that over 80% accept the full scale and only about 10% refuse altogether.

In his report from *Birmingham* Dr. J. R. Mitchell concludes that the children have emerged from the fourth year of war with a gratifying level of health. Nutrition on a clinical assessment has shown a slight deterioration but this is ascribed to individual differences in the assessors. The satisfactory condition is borne out by an absence of any apparent increase in illness, though there is among practitioners a fairly general impression, incapable of numerical expression, that convalescence from illness is more protracted. Dr. C. L. C. Burns has tried to follow up children seen at the child-guidance clinic after the lapse of three years or so; from the limited number available for investigation he concluded that the younger children respond better than the older, that the outlook is better in those with an IQ over 85%, and that the more coöperative the parents the better the result, though 10 out of 24 cases did show improvement in which coöperation was poor or bad. Scabies cases are down from 6262 to 5160 and the authorities have found that the most important point in control is a simultaneous treatment of all affected persons in a household.

Infectious Disease in England and Wales

WEEK ENDED MAY 20

Notifications.—The following cases of infectious disease were notified during the week: smallpox, 0; scarlet fever, 1732; whooping-cough, 2619; diphtheria, 598; paratyphoid, 3; typhoid, 5; measles (excluding rubella), 2255; pneumonia (primary or influenzal), 806; puerperal pyrexia, 142; cerebrospinal fever, 62; poliomyelitis, 5; polio-encephalitis, 1; encephalitis lethargica, 0; dysentery, 276; ophthalmia neonatorum, 98. No case of cholera, plague or typhus fever was notified during the week.

The number of civilian and service sick in the Infectious Hospitals of the London County Council on May 17 was 2014. During the previous week the following cases were admitted: scarlet fever, 113; diphtheria, 30; measles, 32; whooping-cough, 74.

Deaths.—In 126 great towns there were no deaths from enteric fever, 2 (1) from scarlet fever, 1 (0) from measles, 11 (4) from whooping-cough, 3 (1) from diphtheria, 45 (9) from diarrhœa and enteritis under two years, and 17 (2) from influenza. The figures in parentheses are those for London itself.

The number of stillbirths notified during the week was 222 (corresponding to a rate of 29 per thousand total births), including 25 in London.

ACCORDING to the Metropolitan Life Insurance Company of New York the death-rate from appendicitis in the United States has been nearly halved in the last four years. The reduction is credited to the intensive campaign to encourage early admission of appendicitis cases to hospital, and the avoidance of laxatives in the presence of abdominal pain.

On Active Service

CASUALTIES

The following casualties are announced :

KILLED

Captain NORMAN WILLIAM JONES, MB SHEFF, RAMC.
Captain ROBERT GORDON HAYMAN JONES, MB LOND, RAMC.
Major RUDOLPH STUPPEL, FRCSE, RAMC.

MISSING PRESUMED KILLED

Surgeon Lieutenant GEORGE NOEL DAVISON, MB DURH, RNVR.

WOUNDED

Captain J. H. BROWN, RAMC.
Major G. S. FERRABY, MB LOND, RAMC.
Captain A. P. D. MONTGOMERY, BM OXFD, RAMC.
Major F. J. O'DOWD, MRCS, IMS.
Captain C. P. SILVER, BM OXFD, RAMC.
Captain ALEC WATTISON, MB EDIN, RAMC.

DIED OF WOUNDS

Captain GEORGE EMILE YARDLEY, MB CAMB, FRCS.

AWARDS

The following awards have been made :

CBE

Surgeon Captain J. A. MAXWELL, CVO, MB DUBL, FRCS, RN.
For distinguished service as senior medical officer in HM Hospital Ship *Oxfordshire* in dangerous waters during operations in Sicily and off the Salerno Beaches.

OBE

Surgeon Lieut.-Commander W. J. LATHAM, MRCS, RN.
For distinguished services in connexion with operations which led to successful landings in Sicily and at Salerno.

DSC

Surgeon Lieutenant J. I. THOMAS, MRCS, RNVR.

MENTION IN DESPATCHES

Surgeon Lieut.-Commander B. M. Goldsworthy, MB LOND, RN.

REPATRIATED

The following officers of the RAMC are among the protected personnel who reached this country from Germany last Sunday :—

Lieut.-Colonel W. E. A. BUCHANAN, MB GLASG.
Captain S. G. COWPER, MRCS.
Captain W. MACKAY DAVIDSON, MB ABERD.
Captain CHARLES DONALD, MB EDIN.
Captain WILLIAM DORNAN, MB BELF.
Captain J. P. FOX, MB LOND.
Captain A. G. HEWER, MRCS.
Colonel D. P. LEVACK, MB ABERD.
Major F. J. O'MEARA, FRCPI.
Major A. S. PILL.

MEMOIRS

Squadron-Leader EDWARD TUDOR OWEN, MB LPOOL, FRCSE, whose death on active service with the RAF during March has been announced, qualified in 1933 and after holding house-appointments at the Birkenhead General Hospital and the Liverpool Royal Infirmary became assistant medical officer at the Walton City Hospital in 1934. Two years in general practice at Wrexham followed, but with his appointment in 1938 as assistant resident surgical officer at Withington Hospital, Manchester, he was able to follow his bent for surgery. After gaining further experience in posts at Stockport Infirmary, the Christie Hospital, Manchester, and Whiston Institution, Prescot, he took the Edinburgh fellowship in 1941. He returned to Manchester as surgical chief assistant to the Royal Infirmary and visiting surgeon to the Oldham Royal Infirmary and held these appointments till he joined the RAF in 1942. His fellow workers remember him as a loyal colleague whose own work was good and who yet had time and interest to spare for what others were doing. He excelled at tennis, and at one time was a competitor in the Welsh open golf championship.

Wing-Commander R. M. OUTFIN, whose death on active service was lately announced (*Lancet*, May 20, p. 679), was one of the youngest senior medical officers in the RAF, and for the last few months was with a coastal Air Force group in Italy. He had been mentioned in despatches for his work in North Africa, where he commanded a mobile field hospital. He met his death flying with vaccine to a small unit in the Central Mediterranean. Outfin landed in Sicily three days after the invasion to establish the first RAF hospital on the island, and he was also on the Salerno beaches within a few days of the landing. He leaves a widow now serving as a section-officer with WAAF.

Notes and News

MENDING A MINER

MANKIND has been divided into two classes, the quick and the dead ; and according to Sir Alfred Webb-Johnson, who introduced the new British Council film (*Accident Service*) at the Curzon Street Cinema on May 26, the quick can be further subdivided into those who are quick enough and those who are not. Miners, however, he went on to say, sometimes cannot escape injury even by quickness, and the hazard of injury is five times greater in mining than in any other occupation. The film showed an accident service in which many miners are treated, and began grimly enough when a man with a fractured spine was being carried out of the cage on a stretcher. The audience shares his experience from that point. He is taken first to the modern hospital—with its staircase enclosed in windows, a great prism of glass, and its severe lines—where he is examined and radiographed, and compression fracture in the lumber spine is diagnosed. A clever simple diagram shows the injury, and the danger to the spinal cord. In the plastering room we see our patient suspended, prone and comfortable, in a canvas sling with his spine hyperextended. Sling and all are included in the plaster, and after a week of bed exercises we see him taking his first walk. While he is working away at his daily dozens, still in plaster, we meet some other patients and attend an operation for compound fracture of the tibia, which being mud-coloured somehow looks more objectionable than the real thing. However, as Sir Alfred had warned lay members of the audience, the spoken commentary provides a guide for those who wish to keep their eyes shut. The rest of the film is thoroughly cheering, for our friends all move on to a rehabilitation centre where their lives become one giddy round of occupations, recreations and gymnastics, and they all seem to enjoy it very much. The way in which the activities are used to strengthen given muscle groups is well shown. A swimming bath is a particularly useful bit of equipment, and ordinary hospital chores, like digging and wood-cutting, can be made to serve the patients well. Technically the film is thoroughly successful, from the well-chosen music at the beginning to the pleasant parting shot of the cage taking our healed and whole friend down again to his work.

SOCIALIST MEDICAL ASSOCIATION

AT the 14th annual meeting held in London on May 21, with Mr. Somerville Hastings, FRCS, presiding, resolutions were passed recommending that trained nutrition workers should be attached to all health units, that a national ambulance service should be established, that corporal punishment should cease to be part of the judicial penal system of this country, and that the manufacture of useless pharmaceutical products should cease in order that all resources not required for supplying the Armed Forces and indispensable home needs should be concentrated on the production of drugs (including synthetic antimalarials) needed for the relief of suffering in India. The meeting welcomed the white-paper on a National Health Service and urged the Government to introduce the necessary legislation soon, without allowing itself to be weakened by pressure from any quarter or vested interest.

"All health workers must be ensured adequate incomes and good conditions and, in particular, a large measure of control at the periphery through committees of all health workers. . . . Advisory councils must have the right to issue their reports, this method of ensuring consideration of professional opinions being preferable to any method of direct representation for doctors. We believe it is unnecessary to make the Central Medical Board the employer. The terms and conditions of service must be negotiated and settled centrally, but all doctors should be employed by the joint health authority of the area in which they work."

Deploring the statement issued by the council of the British Medical Association on May 13, the meeting declared that by rejecting the principle of a 100% service the BMA leaders seek to create "a situation in which the doctors would be fighting for their sectional interest (real or imaginary) against a measure which is to the benefit of the whole community and is approved by all the political parties."

University of Cambridge

On May 20 the degrees of MB, B Chir. were conferred by proxy on J. B. Lyon.

Transatlantic Call

The 71st broadcast in this series is to be heard on June 11 on the Home Service at 6.30 PM, when a country doctor from Worcestershire is to talk to a country doctor from America.

Indian Association for the Cultivation of Science

The first award of the Bimala Churn Law medal which is to be given for "important contributions to science including medicine" has been made to Sir Henry Dale, PRS.

Unrra

Dr. WILBUR A. SAWYER has been appointed director of health under the United Nations Relief and Rehabilitation Administration. His headquarters will be in Washington.

Dr. Sawyer has for nine years been director of the Rockefeller Foundation's international health division. Before serving in the last war, he was director of the state hygienic laboratory, and executive officer of the state board of health, in California, and held a chair of preventive medicine. During his service with the Rockefeller Foundation he has directed a hookworm campaign in Australia, has made important contributions to immunisation against yellow fever, and has negotiated and planned coöperative projects with the health authorities in many countries of both hemispheres.

Royal Medical Benevolent Fund

Sir Arnold Lawson presided at the annual meeting on May 25, when Dr. L. G. Glover presented the 108th report and a balance sheet in which legacies and generous support from the profession had justified an improvement in the allowances to its beneficiaries. Dr. Glover's resignation as hon. treasurer, after twelve years of service, was accepted with regret, and he was elected a vice-president. The new treasurer is Dr. C. Luther Batteson. Sir Thomas Barlow was re-elected president, and Mr. R. M. Handfield-Jones hon. secretary. The scope of the fund has been widened by the willingness of the Royal Colleges and other medical corporations to be represented ex officio on the committee of management: Lord Moran and Dr. C. M. Hinds-Howell for the RCP, Mr. V. Zachary Cope for the RCS, Mr. Eardley Holland for the RCOG, and Sir Stanley Woodwark for the Apothecaries.

Royal Society of Medicine

There will be a general meeting of fellows of the society on Tuesday, June 6, at 5 PM. At the section of history of medicine on June 7, at 2.30 PM, Sir Arthur MacNalty will read a paper on Edward Bancroft, MD, FRS, and the War of American Independence, and Dr. H. P. Bayon will speak on John Zephaniah Holwell and the Black Hole of Calcutta. At the section of ophthalmology, at 5 PM on June 9, Mr. Montague Hine will describe the results of operation in detachment of the retina and Mr. Frank Juler the removal of melanomata of the iris. The combined meeting of the sections of laryngology and otology will begin at 10.30 AM on the same day, when Brigadier Myles Formby and Major E. G. Collins will open a discussion on chronic suppurative otitis media in the Army with special reference to treatment with penicillin. At 2.30 PM Mr. F. C. W. Capps, Mr. E. Gwynne Evans and Mr. Arnold Nove will speak on a respiratory clinic for children. The meeting will be continued on June 10, when Major E. P. Fowler, USAMC, will show a film of the movements of the vocal cords, and Air-Commodore Dickson will demonstrate the Air Ministry audiometer.

The King has given permission to Mr. C. A. KEOGH to wear the insignia of commander of the Order of St. Olav conferred on him by the King of Norway in recognition of services rendered during the war.

Colonel ROGER ERRINGTON has been appointed honorary physician to the King, in succession to Colonel Frederick Whalley (retired), and Major-General Sir ERNEST COWELL has been appointed to be honorary surgeon to the King, in succession to Colonel A. R. Moodie (retired).

Sir STANLEY WOODWARK has been appointed president of the Royal Institute of Public Health and Hygiene.

Mr. WILLIAM GRANT, formerly minister of labour, has been appointed the first minister of health and local government for Northern Ireland.

ON Sunday, May 21, in the parish church of Great Missenden, Bucks, a reredos was dedicated to the memory of Edgar Olive Turner, MB LOND, who died three and a half years ago. Dr. Turner had practised in the district for nearly half a century.

ONION PASTE AS A DRESSING FOR WOUNDS.—At the All-Union Institute of Experimental Medicine, USSR, I. V. Toroptsev and A. G. Filatova have been treating wounds by exposing them to the emanations of onion. Peeled onion is ground into a paste immediately before use and this is placed in a glass dish which is then inverted over the wound, so that the paste does not come into actual contact with it. The wound is exposed to the onion "vapour" for ten minutes at a time; it is not clear whether this is done daily or more frequently. In 11 painful septic amputation stumps treated, pain was relieved by one application, smell and purulence began to subside after two applications, and in five days all cases showed extensive epithelisation.

The postgraduate courses in industrial medicine which the University of Sheffield had arranged to hold in July have been postponed.

The meeting of the Pathological Society of Great Britain and Ireland which was to be held on July 7 and 8 has been cancelled.

Appointments

BAKER, M. G., MRCS: examining factory surgeon for Ashby-de-la-Zouch, Leicester.

BOLLON, O. J. P., MB BRIST.: examining factory surgeon for Bridgwater, Somerset.

BREMNER, A. E., MB ST. AND.: surgical registrar at the Royal Victoria Infirmary, Newcastle-on-Tyne.

COOPER, M. C., MRCS: examining factory surgeon for Looe, Cornwall.

GOODHART, C. E. D. H., MD CAMB., senior resident anæsthetist at St. Heller County Hospital, Surrey.

SMYTH, MICHAEL, B SC, M CH NUI, FRCS, consulting surgeon to Queen Mary's Hospital, Rochampton.

Births, Marriages and Deaths

BIRTHS

BURGESS.—On May 19, at Durban, the wife of Squadron-Leader Gerald Lynch Burgess, MRCS, RAF—a daughter.

CHADWICK.—On May 22, at Adlington, Cheshire, the wife of Major T. H. Chadwick, RAMC—a son.

DIRDACK.—On May 13, at Sevenoaks, the wife of Dr. Morris Dirdack—a daughter.

JENNINGS.—On May 26, at Reading, the wife of Dr. L. M. Jennings—a daughter.

LEWIS.—On May 24, at Carmarthen, the wife of Lieutenant C. B. Lewis, RAMC—a son.

MAYBURY.—On May 17, at Godalming, the wife of Mr. B. C. Maybury, FRCS—a son.

PARKER.—On May 24, the wife of Captain J. L. Parker, RAMC, of Harrow Weald—a son.

SCOTT.—On May 21, the wife of Dr. G. I. Scott, of Elgin—a daughter.

SMITH.—On May 23, at Beaconsfield, the wife of Captain Hugh Smith, RAMC—a son.

STEVENSON.—On May 28, at Farnham, the wife of Lieut.-Colonel D. P. Stevenson, RAMC—a son.

VANCE.—On May 26, at Three Bridges, Sussex, the wife of Dr. J. R. M. Vance, RAF—a son.

MARRIAGES

BARTON—COOPER.—On May 20, John Douglas Michael Barton, MRCS, surgeon lieutenant RNVR, to Mavis M. Cooper, WAAF.

BOMFORD—UPWARD.—On May 17, in London, Bruce Bomford, MB, to Jean Upward.

BYRNE—MARLE.—On May 16, at Poona, India, John W. Byrne, captain RAMC, to Ruth W. Marle, CSP Massage Corps.

RYCROFT—KITTO.—On May 25, at Salisbury, Richard Noël Rycroft, MRCS, flight-lieutenant RAF, to Audrey Patricia Kitto.

DEATHS

CARR.—On May 23, at Chilworth, Southampton, Howard Carr, CB, MD, M CH, RUI, major-general AMS retd, aged 81.

HARRISON.—On May 26, Herbert Harrison, MRCS, aged 74.

WALLACE.—On May 24, at Mount Vernon Hospital, Sir Cuthbert Wallace, BT, KCMG, FRCS, in his 77th year.

". . . The aggressive person is the person who gets things done, and much aggressiveness is very usefully sublimated into social idealism. But apart from those who are merely rebels against authority, some of the sublimated aggression may very easily revert to simple pugnacity if opposition is encountered. This aggressiveness excites fear and counter-aggressiveness in those who for any reason are opposed to change, and a situation arises within a nation which psychologically is comparable to that which, when it occurs between nations, leads to war. When the war is over we are likely to have to face these difficulties within our own nation."—Dr. RUSSELL BRAIN, in the Swarthmore lecture given at Friends House on May 25.

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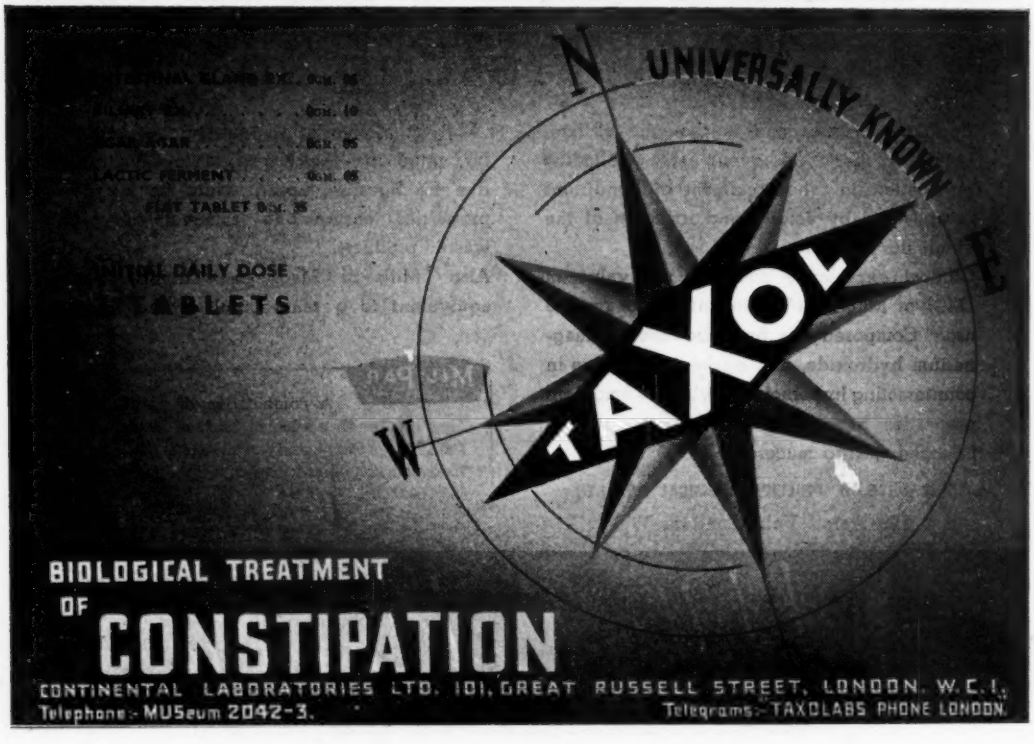

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INTERVIEWS IN LONDON BY APPOINTMENT.

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FOR NERVOUS AND MENTAL DISORDERS

NORTHAMPTON

PRESIDENT: THE MOST HON. THE MARQUESS OF EXETER, K.G., C.M.G., A.D.C.

MEDICAL SUPERINTENDENT: THOMAS TENNENT, M.D., F.R.C.P., D.P.H., D.P.M.

This Registered Hospital is situated in 130 acres of park and pleasure grounds. Voluntary patients, who are suffering from incipient mental disorders or who wish to prevent recurrent attacks of mental trouble; temporary patients, and certified patients of both sexes are received for treatment. Careful clinical, bio-chemical, bacteriological, and pathological examinations. Private rooms with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

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This is a Reception Hospital in detached grounds with a separate entrance, to which patients can be admitted. It is equipped with all the apparatus for the complete investigation and treatment of Mental and Nervous Disorders by the most modern methods: insulin treatment is available for suitable cases. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical baths, Plombieres treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-Ray Room, an Ultra-violet Apparatus, and a Department for Diathermy and High-frequency treatment. It also contains Laboratories for bio-chemical, bacteriological, and pathological research. Psychotherapeutic treatment is employed when indicated.

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Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupational therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit growing.

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The seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, at Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (TELEPHONE: No. 2356 and 2357 Northampton), who can be seen in London by appointment.

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Joint Treasurers: EDMUND STONE, Esq., and JOHN L. WORSFOLD, Esq., O.B.E.

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This REGISTERED Hospital is situated at Monks Orchard in some 250 acres of park, pleasure and farm grounds. Application can be considered on behalf of patients of the educated classes in a presumably curable condition.

With a view to early treatment voluntary or uncertified patients are admitted.

Patients who can contribute 5 guineas weekly towards the cost of treatment and maintenance may be received as vacancies arise. The Committee will also consider applications for admission at lower rates and in certain cases will be prepared to admit patients free of charge.

The comfort of sensitive patients is greatly enhanced by the fact that the majority are given single bedrooms.

TREATMENT ON MODERN PRINCIPLES. Every facility for specialised investigation and treatment is provided in the Lord Wakefield of Hythe Science and Treatment Unit, including RADIOLOGICAL and DENTAL DEPARTMENTS, BIO-CHEMICAL, PATHOLOGICAL and PSYCHOLOGICAL LABORATORIES.

The Medical Staff have access to a panel of Consultants in cases which present unusual symptoms requiring specialised investigation and treatment.

Under the direction of qualified officers HELIO-THERAPY, HYDRO-THERAPY and ELECTRO-THERAPY are administered in the Physio-Therapy Department.

SPECIALISED TREATMENT of various forms is given to suitable cases.

OCCUPATIONAL THERAPY in the form of various Arts and Crafts is actively encouraged from the medical aspect and under the guidance of a competent instructress this department has proved most effective as a therapeutic factor in all stages of mental illness.

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Application should be made to the Physician-Superintendent.

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Telephone: Witcombe 2181 Telegrams: "Hoffman, Birdlip"

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Cases of Alcoholism and Drug Addiction are admitted. Every facility for individual treatment on the most modern lines. As the Hospital is well endowed, terms are exceptionally moderate.

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A modern country house, 12 miles from Marble Arch, in attractive and secluded surroundings. Fees from 10 guineas per week inclusive. Cases under Certificate, Voluntary and Temporary Patients received for treatment.

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Notice is hereby given that the following Examinations will commence on the dates stated below :—

DIPLOMA IN PUBLIC HEALTH
Monday, 26th June.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY
Monday, 17th July.

DIPLOMA IN MEDICAL RADIOLOGY
Monday, 17th July.

DIPLOMA IN PHYSICAL MEDICINE
Monday, 17th July.

Candidates who have fulfilled the necessary conditions and who desire to present themselves for examination must give notice in writing to the Secretary, Examination Hall, 8–11, Queen-square, London, W.C.1, at least 21 days before the date of the Examination, transmitting at the same time such certificates as may be required by the regulations of the Board, together with the full amount of the fee for the part or parts of the Examination for which they desire to enter.

Applications for Part II are due at the same time as those for Part I. HORACE H. REW, Secretary.

L. M. S. S. A.

FINAL EXAMINATION: SURGERY, July 10th, August 14th October 9th, 1944; MEDICINE, PATHOLOGY, July 17th, August 21st, October 16th, 1944; MIDWIFERY, July 18th, August 22nd, October 17th, 1944; MASTERY OF MIDWIFERY EXAMINATIONS, May and November.

For regulations apply REGISTRAR, Apothecaries' Hall, Black Friars-lane, London, E.C.4.

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Prof. E. D. Adrian, O.M., F.R.S., M.D., F.R.C.P., will deliver the BERTRAM LOUIS ABRAHAMS LECTURE on Thursday, 8th June, at 4.30 P.M., at the College, Pall Mall East, S.W.1.

Subject: "Localisation in the Cerebrum and Cerebellum."

Any Member of the Medical Profession admitted on presentation of card. H. E. A. BOLDERO, D.M.,
Pall Mall East, S.W.1. Registrar.

EXAMINING SURGEONS: Factories Act, 1937. The following appointment as Examining Surgeon under the Factories Act, 1937, is vacant. Applications should be sent to the Chief Inspector of Factories, St. James's-square, London, S.W.1.

District	*County*	*Latest date for receipt of application*
FLEET ..	SOUTHAMPTON ..	12TH JUNE, 1944

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.2. The appointment of CLINICAL ASSISTANTS to the undermentioned members of the Honorary Staff, who attend the Out-patients' Department at the times indicated, will be considered at an early date. A fee of 5 guineas becomes payable to the funds of this Hospital on appointment, and applications should reach the undersigned on or before Wednesday, 14th June, 1944.

Mr. JOHN SANDREY ..	Mondays ..	2 to 5 P.M.
Mr. ALBAN ANDREWS ..	Tuesdays ..	2 ,, 5 P.M.
Mr. F. J. F. BARRINGTON (for Mr. R. Ogier Ward)	Wednesdays ..	2 ,, 5 P.M.
	Thursdays ..	2 ,, 5 P.M.
	Fridays ..	9.30 ,, 11.30 A.M. (Women and Children)
Mr. ALBAN ANDREWS ..	Fridays ..	2 to 5 P.M. (Male out-patients)
Mr. JOHN SANDREY ..	Saturdays ..	2 to 5 P.M.

D. A. BLAND, Secretary.

LONDON LOCK HOSPITAL, Out-patient Department, 91, Dean-street, W.1. Applications are invited for the appointment of TEMPORARY HONORARY SURGEON, for attendance at the Male Clinics one afternoon each week. The in-patient Hospital is closed for duration of the war. In accordance with war-time practice, the appointment will be temporary only. Applicants should preferably be Fellows of the R.C.S., England.

Applications, with testimonials, should be sent to the Secretary of the Hospital (from whom any further information can be obtained) by 8th June. The Medical Committee meets 14th June for interview (by invitation) and the appointment will be made at the Board Meeting on 6th July.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.3. Applications are invited for the following appointments from registered medical practitioners, Male and Female, including R and W practitioners who now hold A posts:—

ASSISTANT RESIDENT MEDICAL OFFICER (B2). Experience in artificial pneumothorax essential, and in ear, nose, and throat work desirable. Salary at the rate of £150 p.a., with board and residence. The appointment is for 6 months, commencing 1st August, 1944.

HOUSE PHYSICIANS (B2), for which there are 3 vacancies. The duties include work in the Out-patient Department as well as in the wards, and the appointment is for 6 months, commencing 1st August, 1944, with an honorarium of £50 and board and residence.

Applications, stating age, qualifications with dates, nationality, and present post, and accompanied by copies of 1 or more recent testimonials, should reach the undersigned not later than Saturday, 10th June, 1944.

Brompton, May, 1944. F. G. ROUVRAY, Secretary.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.3. The Committee of Management invite applications for the post of whole-time TEMPORARY PATHOLOGIST at a salary of £800 p.a., and, subject to the requirements of the Hospital being fully met, private practice within the Hospital will not be debarred; or for a half-time Temporary Pathologist at a salary of £500 p.a. The appointment is for 12 months in the first instance, commencing on 1st September, 1944. Duly qualified women are eligible for appointment.

Applications, with copies of testimonials, must reach the undersigned not later than Monday, 19th June, 1944.

May, 1944. F. G. ROUVRAY, Secretary.

COUNTY BOROUGH OF EAST HAM. Applications are invited for the post of TEMPORARY DEPUTY MEDICAL OFFICER OF HEALTH AND SENIOR ASSISTANT SCHOOL MEDICAL OFFICER.

The salary will be at the rate of £750, rising by one increment of £50 to £800 p.a., plus war bonus in accordance with the Council's scale for official staff in force from time to time, at present £33 16s. p.a.

Applicants must be duly qualified and the possession of a registrable Diploma in Public Health, Sanitary Science, or State Medicine is desirable. The appointment will be subject to the approval of the Ministry of Health, the provisions of the Local Government Act, 1937, and to the Council's conditions of service applicable to the post in force from time to time.

The successful candidate will be required to act under the direction of the Medical Officer of Health, to act as Deputy Civil Defence Casualty Officer, if required so to do, and to undertake such other duties as may be assigned to him by the Council from time to time. He must devote the whole of his time to the duties of the appointment, not engage in private practice of any kind, pass satisfactorily a medical examination, and enter into a service agreement in a form to be prepared by the Town Clerk.

Persons of military age must obtain the permission of the Ministry of Health to apply for this position under the terms of the Ministry of Health circular 2818 dated 26th May, 1943.

The appointment will be subject to 3 months' notice on either side.

Forms of application can be obtained from the undersigned and must be returned, together with copies of 3 recent testimonials and endorsed "Deputy Medical Officer of Health," not later than the 14th June, 1944.

Canvassing in any form will disqualify.

C. V. THORNLEY, Town Clerk.

Town Hall, East Ham, E.6. 26th May, 1944.

COUNTY BOROUGH OF WEST HAM. Applications are invited from Male or Female practitioners for the post of TEMPORARY ASSISTANT MEDICAL OFFICER (B1) at Dagenham Sanatorium (128 Beds). Suitably qualified R and W practitioners holding B2 appointments, also R practitioners now holding B1 and rejected by the R.A.M.C., may apply. In accordance with the Council's resolution this appointment will, in the first instance, be temporary for the duration of the war, but can be terminated by 1 month's notice on either side.

The salary for the post is £350 p.a., rising by annual increments of £25 to a maximum of £450 p.a., plus a temporary war bonus, with quarters, full board and laundry.

Candidates must be registered medical practitioners, and preference will be given to those who have had some experience of tuberculosis work in addition to general hospital experience. The person appointed will be in charge of the hospital during the absence of the Medical Superintendent and will be required to undertake such other hospital or clinic duties in connexion with tuberculosis work as may from time to time be prescribed by the Medical Officer of Health.

The appointment will be subject to the Council's regulations regarding holidays, sick pay, etc., and the successful candidate will be required to pass a medical examination.

Forms upon which application must be made can be obtained from the Medical Officer of Health, 88 Romford Road, West Ham, E.15, on receipt of a stamped addressed envelope, and should be returned to the undersigned not later than 12th June, 1944.

Canvassing members of the Council is prohibited and will disqualify. CHARLES E. CRANFIELD, Town Clerk.

Town Hall, West Ham, E.15.
26th May, 1944.

THE PRINCE OF WALES'S GENERAL HOSPITAL, London, N.15. Applications are invited from registered medical practitioners, Male and Female, for the appointment of SENIOR HOUSE PHYSICIAN (B2), vacant in July, 1944. The salary is at the rate of £150 p.a., with full residential emoluments. R and W practitioners who now hold A posts may apply, when appointment will be limited to 6 months. J. C. BURDETT,
24th May, 1944. Director and House Governor.

DREADNOUGHT SEAMEN'S HOSPITAL, Greenwich, S.E.10. Applications are invited from registered Male practitioners for the appointment of RESIDENT SURGICAL OFFICER (B1), vacant 1st July. Applicants should have held house appointments and had surgical experience. Applications from R practitioners now holding B1 or B2 posts cannot be considered unless they have been rejected by the R.A.M.C. Salary is at the rate of £350 p.a., with full residential emoluments.

Applications, stating age, qualifications with dates, experience and details of previous appointments, with copies of 3 recent testimonials, should be sent immediately to—

F. A. LYON, Administrator and Secretary.

Seamen's Hospital Society, Greenwich, S.E.10.

BATTERSEA GENERAL HOSPITAL, London, S.W.11. Applications for the appointment of HOUSE SURGEON (A) are invited from registered medical practitioners, Male and Female, including practitioners within 3 months of qualification and liable under the National Service Acts, when appointment will be for a period of 6 months. The salary is at the rate of £140 p.a., with full residential emoluments.

Applications, stating age, nationality, and qualifications, and accompanied by 2 recent testimonials, should be sent to the Secretary of the hospital as soon as possible.

NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, N.W.1. Applications are invited from registered medical practitioners, Male and Female, for the appointment of CASUALTY OFFICER (A), vacant 15th June. The appointment will be for a period of 6 months. Salary £120 p.a., with board, residence, and laundry allowance. Practitioners within 3 months of qualification and liable under the National Service Acts may apply.

Applications, stating qualifications, age, &c., with copies of not more than 3 testimonials, should be sent before 8th June addressed to the Secretary.

THE ELIZABETH GARRETT ANDERSON HOSPITAL, Euston-road, N.W.1. Applications are invited from registered medical Women practitioners, including W practitioners who now hold A posts, for the post of OBSTETRIC ASSISTANT (B2), vacant 1st July, 1944. Appointment for 6 months. Salary at the rate of £200 p.a., with full residential emoluments.

Applications, with copies of 3 testimonials, to be sent to the Secretary by Saturday, 17th June.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.1. There is a vacancy for a PSYCHIATRIST in the Child Guidance Clinic. The post, which is on a sessional basis, will, in the first instance, be tenable for the duration of the war.

Full particulars will be supplied on application to the Secretary.

THE WILLESDEN GENERAL HOSPITAL, Harlesden-road, N.W.10. Applications are invited from registered medical practitioners for the appointments of RESIDENT HOUSE PHYSICIAN (A) and HOUSE SURGEON (A), vacant 1st July, 1944. The appointments will be for a period of 6 months. Salary at the rate of £130 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply.

Applications, stating age, qualifications with dates, nationality, and present post, accompanied by copies of 3 recent testimonials, should be sent immediately to: J. N. DRAKE, Secretary.

MIDDLESEX COUNTY COUNCIL. Resident Junior Assistant MEDICAL OFFICER (B2) required for work in Maternity and Gynæcological Departments at Central Middlesex County Hospital, Park Royal, N.W.10. Applications invited from registered medical practitioners, including R and W practitioners who now hold A posts. Salary at rate of £250 p.a., plus cost-of-living bonus. Board, lodging, and laundry. The Hospital has 58 maternity beds and 50 gynæcological beds and is approved for R.C.O.G. purposes. Whole-time duties, such as Council may direct, under Medical Director. Appointment, subject to medical examination and 1 month's notice, is for 6 months, with possibility of extension to 12 months, except in case of R and W practitioners. Post vacant 12th July, 1944.

Applications, stating age, nationality, qualifications, present post, and previous experience, enclosing copies of not more than 3 recent testimonials, to the Medical Director, "B.3," of Hospital. Application forms not provided.

C. W. RADCLIFFE, Clerk of the County Council.

Middlesex Guildhall, Westminster, S.W.1.

MIDDLESEX COUNTY COUNCIL. Middlesex Colony, Certified INSTITUTION, SHENLEY, near ST. ALBANS. Applications are invited from registered medical practitioners, Male or Female, not liable for war service, for the post of ASSISTANT MEDICAL OFFICER (B1). Salary from £460 to £660 p.a., according to qualifications and experience (plus bonus, now £22 2s. p.a.), with meals, laundry, and furnished accommodation. The appointment will be in a temporary capacity, and determinable by 3 months' notice on either side. Suitably qualified R and W practitioners holding B2 appointments are invited to apply.

Applications should be addressed to the undersigned, and state earliest date when available for duty. A medical examination may be required.

C. W. RADCLIFFE, "B3," Clerk of the County Council.

Middlesex Guildhall, Westminster, S.W.1.

COUNTY BOROUGH OF BARNSLEY. St. Helen Municipal GENERAL HOSPITAL. Applications are invited from registered medical practitioners for the temporary appointment of DEPUTY MEDICAL SUPERINTENDENT (B1) at the above-mentioned Hospital.

The successful applicant will work under the general administrative supervision of the Medical Officer of Health, who is Medical Superintendent of the Hospital, but will have complete clinical control and responsibility in the Hospital.

Applicants should have held resident hospital appointments and extensive experience in obstetrics is essential.

Preference will be given to candidates holding a higher qualification or diploma.

The salary is at the inclusive rate of £650 p.a., rising by annual increments of £25 to £750 p.a., plus the prevailing cost-of-living bonus. In deciding the commencing salary account will be taken of the person's previous experience and qualifications. Accommodation is available at the Hospital for which a deduction from the salary will be made.

The appointment will be conditional upon the successful candidate passing a medical examination for the purposes of the Local Government Superannuation Act, 1937, and will be terminable by 3 months' notice on either side.

Suitably qualified R and W practitioners holding B2 appointments, also R practitioners now holding B1 and rejected by the R.A.M.C., may apply.

Full particulars of the appointment and the scope of the work may be obtained from the Medical Officer of Health, Town Hall, Barnsley, to whom applications, stating age, qualifications, and experience, together with copies of 2 recent testimonials, should be sent to reach me not later than the 17th June, 1944.

Town Hall, Barnsley. A. E. GILFILLAN, Town Clerk.

CITY OF BIRMINGHAM. West Heath Sanatorium. (120 Beds.) RESIDENT ASSISTANT MEDICAL OFFICER (B1). Applications are invited from registered Male medical practitioners for the above appointment. Candidates should have held a resident hospital appointment and an appointment in some institution recognised for the treatment of tuberculosis. The commencing salary will be at the rate of £350 p.a., rising by £25 annually to £450, plus emoluments valued at £150 p.a. and bonus. Suitably qualified R practitioners holding B2 appointments, also those now holding B1 and rejected by the R.A.M.C., may apply.

Applications, stating age, qualifications with dates, experience, and nationality, and accompanied by copies of 3 recent testimonials, should be addressed to the Medical Officer of Health, Public Health Department, Birmingham, 3, to reach him not later than 15th June, 1944.

CITY OF MANCHESTER. Crumpsall Hospital (1400 Beds) and PARK HOUSE (1999 Beds). Applications are invited from registered medical practitioners, Male or Female, for the temporary appointment of RESIDENT ASSISTANT MEDICAL OFFICER (B1) for the mental wards (approximately 450 occupied Beds) of Park House which is an institution adjoining Crumpsall Hospital, Manchester, 8. The post is vacant now. Salary £350 p.a., rising by annual increments of £25 to £450, with board, residence, and laundry valued at £85 in addition, subject to the Manchester Corporation conditions of service. A temporary cost-of-living wages addition is payable in addition to the salary stated. Suitably qualified R and W practitioners holding B2 appointments, also R practitioners now holding B1 and rejected by the R.A.M.C., may apply.

Full information and forms of application may be obtained from the Medical Officer of Health, Hospitals Administration Section, G.P.O. Box 399, Town Hall, Manchester, 2, and applications for the post must be received by him not later than 15th June, 1944. Canvassing in any form is prohibited.

R. H. ADCOCK, Town Clerk.

Town Hall, Manchester, 2, 24th May, 1944.

NUNEATON EMERGENCY HOSPITAL. County of Warwick. Applications are invited from registered practitioners, Male and Female, for the appointment of SURGICAL REGISTRAR (B1) at the above Hospital, vacant shortly. Applicants should have held house appointments and preference will be given to Fellows of one of the Royal Colleges of Surgeons. Salary £450 p.a. (£500 if F.R.C.S.), plus cost-of-living bonus, together with the usual residential emoluments. Suitably qualified R and W practitioners holding B2 appointments, also R practitioners now holding B1 and rejected by the R.A.M.C., may apply.

Applications, on forms to be obtained from the Public Assistance Officer, Shire Hall, Warwick, should be sent in immediately; closing date 20th June, 1944.

CITY OF BIRMINGHAM. Dudley Road Hospital. (1000 Beds.) Applications are invited from registered medical practitioners, Male and Female, including practitioners within 3 months of qualification and liable under the National Service Acts, for the post of JUNIOR MEDICAL OFFICER (A) (House Surgeon) at Dudley Road Hospital. The salary will be at the rate of £200 p.a., plus residential emoluments. To practitioner liable to service the appointment will be for a period of 6 months; otherwise for a period of 1 year.

Applications, stating age, nationality, qualifications, and experience, and accompanied by copies of 3 recent testimonials, should be addressed to the Medical Officer of Health, Public Health Department, Birmingham, 3, to reach him not later than Tuesday, 6th June, 1944.

ST. BARTHOLOMEW'S HOSPITAL, Rochester. (201 Beds.) Applications are invited from registered medical practitioners for post of CASUALTY OFFICER (A), vacant 24th June, 1944. Salary £150 p.a. (plus E.M.S. grant of approximately £50 p.a.), with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may also apply, when appointment will be limited to 6 months.

Applications, stating age, nationality, and qualifications, with copies of recent testimonials, to be forwarded to the Superintendent-Secretary as soon as possible.

COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE. SCALEBOR PARK MENTAL HOSPITAL, near LEEDS. Applications are invited from registered medical practitioners, Male and Female, for the appointment of TEMPORARY RESIDENT ASSISTANT MEDICAL OFFICER (B1), vacant shortly. Salary £450 p.a., plus board, residence, &c., valued at £120 p.a. An additional £50 p.a. is payable if person appointed holds or obtains the Diploma in Psychological Medicine. Suitably qualified R and W practitioners holding B2 appointments, also R practitioners holding B1 and rejected by the R.A.M.C., may apply. Married quarters are not available.

Forms of application may be obtained from the undersigned, by whom they must be received not later than the 17th June, 1944. BERNARD KENYON, Clerk to the Visiting Committee.

County Hall, Wakefield, May, 1944.

ADDENBROOKE'S HOSPITAL, Cambridge. Applications are invited from registered medical practitioners, Male and Female, for the appointment of HOUSE SURGEON (A), vacant 17th July, 1944. Salary is at the rate of £130 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointment will be for a period of 6 months only, which is the normal period of appointment.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of 3 recent testimonials, should be sent not later than Wednesday, 14th June, 1944, to—

J. A. BEARDSALL, Secretary-Superintendent.

SOUTHEND-ON-SEA GENERAL HOSPITAL. Applications are invited from registered medical practitioners, including registered practitioners who now hold A posts, for the appointment of HOUSE PHYSICIAN (B2), vacant immediately. The appointment will be for 6 months. Salary at the rate of £150 p.a., with full residential emoluments.

Applications, stating age, nationality, qualifications, present post, and previous experience, and enclosing copies of 3 recent testimonials, to be sent to—

P. H. CONSTABLE, House Governor and Secretary.

BEDFORDSHIRE COUNTY COUNCIL. St. Peter's Hospital, BEDFORD. Applications are invited from registered medical practitioners for the appointment of ASSISTANT RESIDENT MEDICAL OFFICER (B2) at St. Peter's Hospital, Bedford. Salary will be at the rate of £250 p.a., together with war bonus and an allowance of £100 p.a. in lieu of board and lodgings. R and W practitioners holding A posts may apply, when appointment will be limited to 6 months.

Applications should be addressed to the County Medical Officer, Shire Hall, Bedford, from whom further particulars may be obtained. J. B. GRAHAM, Clerk of the County Council.

Shire Hall, Bedford, 23rd May, 1944.

SURREY COUNTY COUNCIL. Public Health Department. ST. HELIER COUNTY HOSPITAL, CARSHALTON. Applications are invited from registered medical practitioners for the appointment of ASSISTANT MEDICAL OFFICER (B1) to the Chest Block (56 Beds) at the above Hospital. In addition to these duties, the officer appointed will take charge under the Surrey County Council Tuberculosis Scheme of a dispensary sub-area adjacent to the Hospital. In both these functions he will be under the general control of the Tuberculosis Officers of the area and the Medical Superintendent of the Hospital.

The appointment is normally tenable for a period of 5 years, but in the first instance will be temporary for the further duration of the war and subject to 1 month's notice on either side; Local Government Superannuation rights will be preserved.

Applications from R practitioners now holding B1 appointments cannot be considered unless they have been rejected by the R.A.M.C.

The salary is at the rate of £550 p.a., plus full residential emoluments valued at £125 p.a., or if non-resident payment in cash in lieu thereof.

Applications to the County Medical Officer, County Hall, Kingston-upon-Thames, by the 7th June, 1944.

COUNTY BOROUGH OF NEWPORT, Social Welfare COMMITTEE. Applications are invited from registered medical practitioners, Male or Female, for the temporary appointment of JUNIOR RESIDENT MEDICAL OFFICER (A) at Wooloston House Emergency Hospital, Newport, Mon. Salary £150 p.a., with full residential emoluments. All fees, with the exception of coroners' fees, are payable to the Social Welfare Committee. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when the appointment will be for a period of 6 months; otherwise for a period of 12 months.

Applications, accompanied by copies of 2 recent testimonials, should be sent at once to: TOM KAY, Director of Social Welfare, Town Hall, Newport, Mon.

WORCESTER ROYAL INFIRMARY. Applications are invited for the position of HOUSE SURGEON (A), now vacant. The salary will be at the rate of £120 a year, with board and residence. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointment will be for a period of 6 months.

Applications, with copies of not more than 3 testimonials, should be sent to—

HAROLD WIGG, Acting Superintendent-Secretary.

MONTAGU HOSPITAL, Mexborough, Yorks. (123 Beds.) Applications are invited from registered medical practitioners, Male, for the appointment of HOUSE SURGEON (A), now vacant. Commencing salary at the rate of £200 p.a., with usual residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may also apply, when appointment will be for a period of 6 months.

Applications to: A. W. YOUNGS, Secretary-Superintendent.

UNIVERSITY OF BRISTOL. The University invites applications for the post of RESEARCH ASSISTANT to the Professor of Medicine. Salary £500 p.a.

Applications should reach the undersigned, from whom further particulars may be obtained, on or before 26th June.

WINIFRED SHAPLAND, Secretary and Registrar.

HULL ROYAL INFIRMARY. Applications are invited from registered medical practitioners for the post of CASUALTY OFFICER (A), vacant now. Duties in the Casualty and Out-patient Departments and some ward work. Salary £200 p.a. The post carries full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointment will be for a period of 6 months.

Applications should be addressed to—

R. J. CARLESS, House Governor.

HUDDERSFIELD ROYAL INFIRMARY. (321 Beds.) Resident ANÆSTHETIST AND ASSISTANT CASUALTY OFFICER (A), required to commence as soon as possible. Salary at the rate of £150 p.a. with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointment will be for a period of 6 months.

Applications to— H. J. JOHNSON,

General Superintendent and Secretary.

HUDDERSFIELD ROYAL INFIRMARY. (321 Beds.) Casualty OFFICER (B2) required to commence 3rd July, 1944. R and W practitioners who now hold A posts may apply, when appointment will be limited to 6 months. Salary at the rate of £200, with full residential emoluments.

Applications should be sent as soon as possible to—

H. J. JOHNSON, General Superintendent and Secretary.

HEREFORDSHIRE GENERAL HOSPITAL, Hereford. (210 Beds.) Applications are invited from registered medical practitioners, including practitioners within 3 months of qualification and liable under the National Service Acts, for the appointment of JUNIOR HOUSE SURGEON (A), including House Surgeon to Ear, Nose, and Throat Department. The appointment will be limited to 6 months. Salary is at the rate of £150 p.a., with full residential emoluments.

Applications, stating age, qualifications, and nationality, and accompanied by copies of 3 recent testimonials, should be sent to: T. W. UPTON, Secretary.

CITY AND COUNTY OF BRISTOL. Dept. of Public Health, SOUTHMEAD HOSPITAL. Applications are invited from registered medical practitioners for the appointment of RESIDENT TEMPORARY OBSTETRIC REGISTRAR (B1) at Mortimer House, approved annexe to Southmead Hospital (recognised teaching department of Medical School). Applicants should have had previous experience of obstetrics. The salary is £350 p.a. Suitably qualified R and W practitioners holding B2 posts, also R practitioners holding B1 and rejected by the R.A.M.C., may apply.

Applications to be made forthwith to the Medical Officer of Health, Kenwick Lodge, Westbury Park, Bristol, 6.

CAERNARVONSHIRE AND ANGLESEY INFIRMARY, Bangor. (General Hospital.) HOUSE SURGEON (A) and HOUSE PHYSICIAN (A) (Male or Female) wanted. Salaries respectively £160 and £140 p.a., with residence, board, and laundry. Duties to commence as soon as possible. Practitioners within 3 months of qualification and liable under the National Service Acts may also apply, when appointment will be for 6 months; otherwise not exceeding 1 year.

Applications, stating age, qualifications, and nationality, with 2 testimonials, to be addressed to the Secretary.

WARRINGTON INFIRMARY AND DISPENSARY. Applications are invited from registered medical practitioners, Male and Female, for the appointment of HOUSE SURGEON (A), now vacant. Salary is at the rate of £150 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointment will be for a period of 6 months.

Apply immediately to the Superintendent and Secretary, stating age, experience, and enclosing copies of 3 recent testimonials.

THE STAMFORD, RUTLAND AND GENERAL INFIRMARY. Applications are invited from registered medical practitioners, Male and Female, for the appointment of RESIDENT ANÆSTHETIST (B2), now vacant. The salary is at the rate of £350–£400 p.a., according to experience of applicant, with full residential emoluments. R and W practitioners who now hold A posts may apply, when appointment will be limited to 6 months; otherwise for a period of 3 months.

Applications, stating age, qualifications with dates, nationality, and accompanied with copies of 3 recent testimonials, should be sent immediately to: H. F. DONALD, Secretary.

SALISBURY GENERAL INFIRMARY. (Voluntary Hospital— 225 Beds.) Applications are invited from registered medical practitioners for the appointment of 2 HOUSE SURGEONS (A), vacant now. Salary at the rate of £150 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may also apply, when appointment will be for a period of 6 months.

Applications, stating age, nationality, qualifications, and experience, together with copies of recent testimonials, should be sent to: JOHN WILLIAMS, Superintendent and Secretary.

THE BOLTON ROYAL INFIRMARY. (270 Beds—Resident Medical Staff, 6.) Applications are invited from registered medical practitioners, Male and Female, for the appointments of 3 HOUSE SURGEONS (A), one post now vacant, and two in one month's time. Salary £175 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when any of the appointments will be for a period of 6 months.

Applications, stating age, nationality, experience, and post preferred, together with copies of testimonials, to be forwarded to: JOSEPH GRIFFITH, Superintendent-Secretary.

VICTORIA HOSPITAL, Burnley. (169 Beds.) Applications are invited from registered medical practitioners for the appointment of 2 HOUSE SURGEONS (A), now vacant.

The salary in each case is at the rate of £150 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointments will be for a period of 6 months.

Applications to be sent to: J. E. WHEATCROFT, Secretary.

BODMIN EMERGENCY HOSPITAL. Applications are invited from registered medical practitioners, Male or Female, for the appointment of RESIDENT HOUSE SURGEON (B2). The salary is at the rate of £200 p.a., with full residential emoluments. R and W practitioners holding A posts may also apply, when appointment will be limited to 6 months.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of 3 (recent) testimonials, should be sent to the Medical Superintendent, Bodmin Emergency Hospital, Bodmin, Cornwall, as soon as possible.

ROYAL UNITED HOSPITAL, Bath. Applications are invited from registered medical practitioners for the appointments of 3 HOUSE SURGEONS (A). Salary for each post £150 p.a., with board, residence, and laundry. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointments will be for a period of 6 months.

Applications at once to— J. LAWRENCE MEARS,

8th February, 1944. Secretary-Superintendent.

WESTON-SUPER-MARE GENERAL HOSPITAL. (150 Beds.) Applications are invited from medical practitioners (Male) for the appointment of HOUSE PHYSICIAN (A), duties to commence 6th June. Salary is at the rate of £150 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may also apply, when the appointment will be for 6 months.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of 3 recent testimonials, should be addressed to: LESLIE J. FURSLAND, Secretary.

THE ROYAL HOSPITAL, Wolverhampton. (Incorporated under Royal Charter.) (310 Beds.) Applications are invited from registered medical practitioners, Male, for the appointment of CASUALTY OFFICER (B2), now vacant. Salary is at the rate of £150 p.a., with full residential emoluments. R practitioners who hold A posts may apply, when the appointment will be limited to 6 months.

16th May, 1944. W. COCKBURN, House Governor.

DONCASTER ROYAL INFIRMARY. Applications are invited from medical practitioners (Male or Female) for the appointment of HOUSE SURGEON (A). The appointment will be for 6 months. Salary £175 p.a., with full residential emoluments. This large industrial area offers excellent opportunities for gaining experience. Practitioners within 3 months of qualification and liable under the National Service Acts may also apply.

Applications, accompanied by not more than 3 testimonials, to be sent immediately to—

R. LANCASTER, Secretary-Superintendent.

COUNTY BOROUGH OF BLACKBURN. Applications are invited from medical Women for the temporary post of ASSISTANT MEDICAL OFFICER OF HEALTH whose duties will be concerned mainly with Maternity and Child Welfare. The salary will be £600 p.a., rising by annual increments of £25 to a maximum of £700 p.a., plus cost-of-living bonus, at present £49 10s. 9d. p.a. In fixing the commencing salary within the scale regard will be had to previous experience. Candidates must have had 3 years' postgraduate medical experience, together with special experience of midwifery and antenatal work. Possession of the D.P.H. and/or experience in the diagnosis, &c., of venereal diseases though not essential are desirable. The consent of the Minister of Health has been obtained to the making of this appointment.

Forms of application may be obtained from the Medical Officer of Health, Public Health Department, Victoria-street, Blackburn, and should be returned to him as soon as possible, and in no case later than Saturday, the 10th of June, 1944.

CHAS. S. ROBINSON, Town Clerk.

EAST RIDING COUNTY COUNCIL. Driffield Emergency HOSPITAL. (360 Beds.) Applications are invited from registered medical practitioners for the appointment of SENIOR HOUSE SURGEON (B1), vacant immediately. Hospital provides experience in general surgery and gynæcology. Salary at the rate of £275–£350 p.a., with full residential emoluments according to experience. The appointment will be limited to a term not exceeding 1 year and is not renewable. Suitably qualified R and W practitioners holding B2 appointments, also R practitioners holding B1 and rejected by the R.A.M.C., may apply.

Applications, stating age, qualifications, and previous experience, should be forwarded to—

T. STEPHENSON, Clerk of the Council.

County Hall, Beverley, 20th May, 1944.

EAST RIDING COUNTY COUNCIL. Beverley Emergency HOSPITAL. Applications are invited from registered medical practitioners, Male and Female, for the following appointments :—

HOUSE SURGEON (B2), vacant immediately. The salary is at the rate of £200 p.a., with full residential emoluments. R and W practitioners who now hold A posts may apply, when the appointment will be limited to 6 months; otherwise for a period not exceeding 1 year, subject to 1 month's notice on either side.

HOUSE SURGEON (A), vacant immediately. The salary is at the rate of £120 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointment will be for a period of 6 months; otherwise for a period not exceeding 1 year, subject to 1 month's notice on either side.

Applications to be made as soon as possible to—

T. STEPHENSON, Clerk of the Council.

County Hall, Beverley, 11th May, 1944.

THE PRINCE OF WALES'S HOSPITAL, Plymouth. Applications are invited from registered medical practitioners for the appointment of HOUSE SURGEON to Special Departments and CASUALTY OFFICER (A) for duty at the Greenbank Road Section, vacant forthwith. Salary is at the rate of £175 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointment will be for a period of 6 months.

ARTHUR R. CASH, General Superintendent.

Head Office: Greenbank-road, Plymouth, 20th April, 1944.

THE PRINCE OF WALES'S HOSPITAL, Plymouth. Applications are invited from registered medical practitioners for the appointment of HOUSE SURGEON (A), vacant forthwith. Salary is at the rate of £175 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointment will be for a period of 6 months.

ARTHUR R. CASH, General Superintendent.

Head Office, Greenbank-road, Plymouth.

ROYAL INFIRMARY, Preston. Applications are invited from registered medical practitioners, Male and Female, for the appointment of HOUSE SURGEON (A) to the Eye, Ear, Nose, and Throat Department (which has separate Wards and Out-patient Clinics). The appointment, which is recognised for the D.O.M.S. and D.L.O. examinations, becomes vacant on the 6th June. Salary at the rate of £150 p.a., with the usual residential allowances. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointment will be for a period of 6 months.

Applications forthwith to the Superintendent and Secretary, Royal Infirmary, Preston.

COVENTRY AND WARWICKSHIRE HOSPITAL. Applications are invited from registered medical practitioners, Male and Female, including R and W practitioners who now hold A posts, for the appointment of HOUSE SURGEON (B2) for general surgical duties, vacant immediately. The appointment is for 6 months. Salary at the rate of £150 p.a., plus £20 p.a. cost-of-living bonus, together with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of 3 recent testimonials, should be sent immediately to—

S. CECIL HILL, House Governor and Secretary.

CITY OF BIRMINGHAM MENTAL HOSPITAL, Winson Green, BIRMINGHAM, 18. Applications are invited (Male or Female) for the post of TEMPORARY RESIDENT ASSISTANT MEDICAL OFFICER (B1). Salary £350, rising by annual increments of £25 to £450, with full residential emoluments, plus £50 for the D.P.M., and war bonus value £37 2s. 4d. Suitably qualified R and W practitioners holding B2 appointments, also R practitioners holding B1 and rejected by the R.A.M.C., may apply.

Applications, with testimonials, to be sent immediately to the Medical Superintendent.

VICTORIA HOSPITAL, Accrington. Applications are invited from registered medical practitioners, Male, for the appointment of a HOUSE PHYSICIAN (A) at a salary of £175 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may also apply, when appointment will be limited to 6 months.

Applications, with copies of testimonials, to Honorary Secretary, Victoria Hospital, Accrington.

VICTORIA HOSPITAL, Accrington. Applications are invited from registered medical practitioners (Male) for the appointment of HOUSE SURGEON (B2). The salary is at the rate of £200 p.a., with full residential emoluments. R practitioners who now hold A posts may apply, when the appointment will be limited to 6 months.

Apply, with copies of 2 testimonials, to Hon. Secretary.

MANCHESTER ROYAL EYE HOSPITAL. Applications are invited for the post of OUT-PATIENT MEDICAL OFFICER. Successful candidate will be required to undertake morning work in the Out-patient Department. Applicants must be registered medical practitioners and possess a good knowledge of refraction work. Salary £300 p.a., 6 mornings per week.

Applications, giving qualifications and age, accompanied by 3 recent testimonials, should be sent to the General Superintendent.

CITY AND COUNTY OF NEWCASTLE UPON TYNE. NEWCASTLE GENERAL HOSPITAL. (900 Beds.) SHOTLEY BRIDGE EMERGENCY HOSPITAL. (900 Beds.) Applications are invited from registered medical practitioners, Male and Female, for the appointments of HOUSE PHYSICIANS (A) and HOUSE SURGEONS (A), shortly vacant. The appointments will be for a period of 6 months. Salary at the rate of £150 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply.

Applications to be forwarded to the Medical Officer of Health, Town Hall, Newcastle upon Tyne, 1.

COUNTY OF LINCOLN—PARTS OF LINDSEY. Public Health DEPARTMENT. COUNTY INFIRMARY, LOUTH, LINCS. Applications are invited from registered medical practitioners, Male or Female, for appointments as RESIDENT MEDICAL OFFICERS (B2). Salary at the rate of £200 p.a., with full residential emoluments. R and W practitioners who now hold A posts may apply, when appointments will be limited to 6 months; otherwise not exceeding 1 year.

Applications should be sent as soon as possible to the Surgeon and Medical Superintendent, County Infirmary, Louth, Lincs. Testimonials should not be sent, but applications should give full particulars of the candidate together with the names of 2 persons to whom reference can be made.

County Offices, Lincoln, 18th May, 1944.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL, SOUTHAMPTON. (255 Beds.) Applications are invited from registered medical practitioners, Male and Female, including R and W practitioners who now hold A posts, for the appointment of RESIDENT ANÆSTHETIST (B2), now vacant. The appointment is recognised for D.A., and will be for a period of 6 months. The salary is at the rate of £175 p.a., with full residential emoluments.

Applications, stating age, qualifications with dates, nationality, and present post, and accompanied by copies of 3 recent testimonials, should be sent immediately to—

EDWARD L. WIRGMAN, House Governor and Secretary.

CITY OF PLYMOUTH. Didworthy Sanatorium, South Brent, DEVON. (140 Beds.) Applications are invited from registered medical practitioners, Male and Female, for the appointment of NON-RESIDENT MEDICAL OFFICER (B2). Preference will be given to candidates with some experience in the treatment of pulmonary tuberculosis. The person appointed will be required to work under the direct supervision of the Medical Superintendent. The salary is at the rate of £500 p.a. Residential quarters can be obtained in the near neighbourhood. The appointment may be terminated by 1 month's notice on either side at any time. R and W practitioners who now hold A posts may apply, when the appointment will be limited to 6 months; otherwise not exceeding 1 year.

Applications, stating age, qualifications with dates, nationality, and present post, and accompanied by copies of not more than 3 recent testimonials, should be sent as soon as possible to—

T. PEIRSON, Medical Officer of Health.

Seven Trees, Lipson-road, Plymouth.

MARGATE AND DISTRICT GENERAL HOSPITAL. (100 Beds.) Applications are invited from registered medical practitioners for the post of RESIDENT MEDICAL OFFICER (A). Salary is at the rate of £200 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may also apply, when appointment will be for a period of 6 months.

Applications should be sent immediately to the Secretary.

SCARBOROUGH HOSPITAL, Yorkshire. (Normally 140 Beds.) Applications are invited from Male registered medical practitioners for the post of HOUSE SURGEON (A). The appointment is for 6 months commencing immediately, and the salary is at the rate of £200 p.a., with board, residence, laundry, &c. Practitioners within 3 months of qualification and liable under the National Service Acts may also apply.

Applications, with age, testimonials, qualifications, &c., to be sent immediately to the Secretary.

BRITISH LEGION VILLAGE, Nayland Sanatorium, near COLCHESTER. RESIDENT MEDICAL OFFICER (B1) required, Male or Female. Salary £350 p.a., with full residential emoluments. Suitably qualified R and W practitioners holding B2 appointments, also R practitioners holding B1 and rejected by the R.A.M.C., may apply.

Reply, with copies of testimonials, stating age, nationality, experience, and qualifications, to the Medical Director.

PUBLISHED by the PROPRIETORS, THE LANCET LIMITED, 7, Adam Street, Adelphi, in the County of London.
Editorial Office Address, 26, Temple Street, Aylesbury, Bucks (Aylesbury 315).
Printed by HAZELL, WATSON & VINEY, LTD., London and Aylesbury—Saturday, June 3, 1944.
PRINTED IN GREAT BRITAIN—Entered as Second Class at the New York, U.S.A., Office.

LIVERPOOL AND DISTRICT HOSPITAL FOR DISEASES OF THE HEART, 34, Oxford-street, LIVERPOOL, 7. Applications are invited from registered medical practitioners (Male or Female) for the appointment of a HOUSE PHYSICIAN (A), to commence 1st July. Salary is at the rate of £100 p.a., with full residential emoluments. Facilities for M.D. thesis. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointment will be for a period of 6 months.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of 3 recent testimonials, should be sent to: Miss J. LEWIS, Secretary.

DISTRICT INFIRMARY, Ashton-under-Lyne. (200 Beds, mainly surgical.) Applications are invited from registered medical practitioners, Male or Female, preferably with experience of anæsthetics, for the appointment of HOUSE SURGEON (A), immediately. Commencing salary is at the rate of £200 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may also apply, when the appointment will be for a period of 6 months.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of 3 recent testimonials, should be sent immediately to—

FRANK OLIVER, General Superintendent and Secretary.

ROYAL LANCASTER INFIRMARY, Lancaster. (311 Beds.) (Hospital recognised by the Royal College of Surgeons (England) for 2 Senior Posts.) Applications are invited from registered medical practitioners, Male and Female, for the post of ORTHOPÆDIC AND CASUALTY HOUSE SURGEON (B2), now vacant. The salary is at the rate of £175 p.a., with full residential emoluments. R and W practitioners holding A posts may apply, when the appointment will be limited to 6 months; otherwise may be extended. C. H. GRIMSHAW, Superintendent-Secretary.

WEYMOUTH AND DISTRICT HOSPITAL, Weymouth, Dorset. Applications are invited from registered medical practitioners for appointment of HOUSE SURGEON (B2), now vacant. The appointment is open to Male or Female candidates and is for a period of 6 months at a salary of £200 p.a., with full residential emoluments. R and W practitioners holding A posts may also apply.

Applications to be addressed as soon as possible to the Secretary-Superintendent of the Hospital.

ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY, WIGAN. Applications are invited from registered medical practitioners (Male) for the appointment of 2 HOUSE SURGEONS (A), vacant 18th June, 1944. Salary in each instance is at the rate of £150 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointments will be for a period of 6 months; otherwise may be extended for a further period.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of 3 recent testimonials, should be sent as soon as possible to—

A. STANLEY BRUNT, General Superintendent and Secretary.

COUNTY BOROUGH OF SOUTHEND-ON-SEA. Applications are invited from registered medical practitioners of either sex, including R and W practitioners who now hold A posts, for the following Grade II appointments at the Southend Municipal Hospital, Rochford, Essex:—

(1) RESIDENT ASSISTANT MEDICAL OFFICER (B2)—duties mainly medical.

(2) RESIDENT ASSISTANT MEDICAL OFFICER (B2)—duties mainly obstetrics and anæsthetics.

The salary is at the rate of £325 p.a., with full residential emoluments, plus war bonus. The persons appointed will be liable to pay superannuation contributions if the provisions of the Local Government Officers' Superannuation Acts are applicable. To R or W practitioners, the appointments will be limited to 6 months; otherwise for a period of 1 year and subject to 1 month's notice on either side.

Application forms, obtainable from the Medical Superintendent, Southend Municipal Hospital, Rochford, Essex, should be returned not later than 17th June, 1944. H. J. WORWOOD, Town Clerk's Office, Southend-on-Sea. Town Clerk.

HUDDERSFIELD ROYAL INFIRMARY. (321 Beds.) HOUSE SURGEON (A) required to commence 3rd July, 1944. Salary at the rate of £150 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointment will be for a period of 6 months.

Applications, together with testimonials, should be sent as soon as possible to—

H. J. JOHNSON, General Superintendent and Secretary.

HUDDERSFIELD ROYAL INFIRMARY. (321 Beds.) Applications are invited for the combined appointment of HOUSE PHYSICIAN AND HOUSE SURGEON (B2) to the Ear, Nose, Throat, and Eye Department. Duties to commence 20th June, 1944. Salary at the rate of £187 10s. p.a., with full residential emoluments. R and W practitioners who now hold A posts may apply, when appointment will be limited to 6 months.

Applications, together with testimonials, should be sent as soon as possible to—

H. J. JOHNSON, General Superintendent and Secretary.

CITY MENTAL HOSPITAL, Humberstone, Leicester. Applications are invited for the post of TEMPORARY ASSISTANT MEDICAL OFFICER (B1), Male or Female. Salary, if single, £400 p.a., together with board, lodging, washing, and attendance valued at £100. If married, the salary will be £500, together with partly furnished flat, further particulars of which will be given on application. An additional £50 will be paid for the possession of the D.P.M. Suitably qualified R practitioners holding B2 appointments, also those now holding B1 and rejected by the R.A.M.C., may apply.

Applications, giving full particulars with 3 names of referees, should be submitted to the Medical Superintendent before 20th June, 1944.

ROYAL BUCKINGHAMSHIRE HOSPITAL, Aylesbury. (150 Beds.) The following posts will become vacant on or about 1st July, 1944:—

HOUSE SURGEON (A) and HOUSE PHYSICIAN (A). Applications are invited from registered medical practitioners, including those within 3 months of qualification and liable under the National Service Acts. Salary for each post is at the rate of £120 p.a., with full residential emoluments. Opportunities afforded to work with London consultants, and to undertake duties, according to the post held, in all branches of medical and surgical practice, including anæsthesia. To R and W practitioners the appointment would be for a period of 6 months.

Applications, together with copies of 2 recent testimonials, to be sent immediately to: F. G. DAWES, Secretary-Superintendent.

ROYAL ISLE OF WIGHT COUNTY HOSPITAL, Ryde, I.W. Applications are invited from registered medical practitioners, either sex, for the appointment of HOUSE SURGEON (B2), now vacant. The appointment will be for 6 months. Salary at the rate of £180 a year, with board, residence, and laundry. As this is the senior post, previous surgical experience is advisable. R and W practitioners holding A posts may apply.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of 3 recent testimonials, should be sent without delay to—

A. S. GORDON, Secretary.

SOUTHERN RHODESIA GOVERNMENT MEDICAL SERVICE. Applications are invited from fully qualified Male medical practitioners for appointment as GOVERNMENT MEDICAL OFFICER in the Southern Rhodesia Government Medical Service. Salary will be on the scale £1000 by £50 to £1250, and the salary will commence from the date of assumption of duty in Southern Rhodesia. Applicants must hold registrable medical degrees and Diploma in Public Health. D.T.M. & H. is also desirable. The successful applicant will be required to sign an agreement for 3 years' service in the first instance, thereafter application may be made to be placed on the pensionable establishment. A free steamship passage to Cape Town and first-class railway ticket thence to Southern Rhodesia will be provided. No applicants over the age of 35 years will be considered. Canvassing, either directly or indirectly, will disqualify applicants.

Applications, stating age, qualifications, and experience, together with copies of testimonials, should reach the Official Secretary, Office of the High Commissioner for Southern Rhodesia, Rhodesia House, 429, Strand, London, W.C.2 (from whom further particulars and application form may be obtained), not later than 12th June, 1944.

SUDAN MEDICAL SERVICE. There are vacancies for British-born medical Men. Candidates should be under 30 years of age and unmarried. Salary commences at £E.720 (approximately £738) a year. Some postgraduate experience is essential and preference would be given to holders of B appointments. Many members of the Service have done duty with the British Army and Sudan Defence Force and there is a growing strain on those who have been working more than 4 years without home leave. The maintenance of the efficiency of the African Medical Services has been generally recognised as a vital contribution to the United Nations War Effort and the Central Medical War Committee raises no objection to those selected taking up appointments in the Sudan.

Full particulars may be obtained from Dr. H. C. SQUIRES, Consulting Physician to the Sudan Government, 93, Harley-street, W.1 (Telephone: WEL 3423), who would be glad to see intending applicants at the earliest possible date.

Rowntree & Co., Ltd., require a full-time Medical Officer (Male) at York. The vacancy occurs through the calling up of the Medical Officer on military service, and the appointment will be of a temporary nature. Applicants should be over military age or otherwise ineligible for military service. Salary not less than £900 p.a.

Applications, stating qualifications, experience, age, date on which able to take up duty, should be made to the Labour Director, The Cocoa Works, York, to reach him not later than 9th June, 1944.

Part-time Assistant required. North West London. Close West End. 6 P.M. to 7 P.M. Monday, Wednesday, Saturday surgeries only. 3 guineas.—Address, No. 441, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Doctors, Male and Female, required for Locums and Assistantships. Vacancies for Hospital Locums and Ships' Surgeons. Practices and Partnerships for disposal.—Write: A. SHAW, Medical Transfer Agent, Premier Buildings, 88, Church-street, Liverpool.

Good English Doctor free Locums end of June-October. Teetotaller. Experienced hospital and G.P. Country, country-town, or seaside, North of England or South Scotland. £14 14s. a week, all found.—Write for particulars: Address, No. 445, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Ship's Surgeon Appointment Wanted by Doctor (Male) Exempt. All particulars: Address, No. 446, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Part-time Assistantship required indoor in London, with West End possibilities. Holder of M.D., D.G.O., D.P.H. (Prague), and 17 years' experience. Arrangements by interview.—Address, No. 437, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Assistantship required by young doctor, in London or suburbs. British, married, ineligible. Four years' general hospital experience, also E.N.T. and anæsthetics. No midwifery. Furnished accommodation and some attendance essential. State salary.—Address, B.'W.. 154, Archway-road, Highgate, N.6.

Dr. S. Linfoot has transferred the bacteriological practice to No. 7, Harley-street (LANgham 1132), where the full Laboratory services are now available.

Microscopes wanted for essential work and war factories; high prices offered. Also Leicas and similar Cameras and "Talkies." Prompt cash.—WALLACE HEATON LTD., 127, New Bond-street, W.1.

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